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Three Essays on Customers in Waits.

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Three Essays on Customers in Waits.

by

Yizhe Lin

A THESIS

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ABSTRACT

Waiting is an important topic that deserves more scholarly examination given its ubiquity, its substantial impact, and its diversity and complexity. This thesis attempts to offer firms potential solutions to waiting issues by investigating customers' perceptions, thoughts, emotions, intentions, and behaviors in waits. Specifically, I examine customers' perceptions and responses to waits in the service (Essay 1), customers' decision-making about waiting for new products (Essay 2), and customers' intention to delay their redemptions of rewards in loyalty programs (Essay 3). The selection of these three waiting scenarios covers the diversity inherent in waiting issues and yet sharing a commonality of 'delay'. In the first essay, I propose that customers see service waits as both an inherent component of the service and an extra cost to the service, and I examine how these two perspectives shape customers' responses to service waits. In the second essay, I found that customers' decision to wait for the future product could be influenced by whether the product is introduced with an emphasis on hedonic or utilitarian aspect, and I reveal two distinct underlying mechanisms for the effect. In the third essay, I investigate customers' redemption from the goal theory perspective, and I compare strategic customers, who delay redemptions for larger rewards, to non-strategic customers in the model.

This thesis is original, unpublished, independent work by the author, Yizhe Lin.

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“When nothing seems to help, I go and look at a stonecutter hammering away at his rock perhaps a hundred times without as much as a crack showing in it. Yet at the hundred and first blow it will split in two, and I know it was not that blow that did it – but all that had gone before.

Jacob Riis”

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TABLE OF CONTENTS

Abstract.....	ii
Acknowledgements.....	iv
Table of Contents.....	v
List of Tables	xii
List of Figures.....	xiii
Overview.....	1
Reference	6
Figure	7
Figure: Interrelationships among Three Essays.....	7
Essay 1 – Dual Perspectives of Customer Wait Time Perception: A Conceptual Framework and Meta-Analysis.....	8
Two Conceptualizations of Customer Wait.....	13
Service-Attribute Model of Customer Wait.....	13
An Integrated ‘Dual-Perspective’ Model of Customer Wait: A Conceptual Framework	17
Research Question 1: Diagnostic Measure – Subjective Time vs. Disconfirmation	18
Moderator 1: During vs. After the Wait.....	19
Moderator 2: Known vs. Unknown Wait.....	20
Research Question 2: Elicitation of Anger – Wait Acceptability vs. Anxiety.....	22
Moderator 3: Wait With vs. Without Regret	23
Research Question 3: Service Satisfaction – Wait Acceptability vs. Anger.....	25
Moderator 4: Important vs. Unimportant Service.....	26
Methodology.....	28

Meta-Analysis and Results	31
Bivariate Association	31
Two-Stage SEM.....	32
Model Fit Results.....	33
Mediation Tests.....	34
Moderator Analysis.....	35
General Discussion	38
Theoretical Insights.....	39
Managerial Implications	43
Reference	48
Tables and Figures	53
Table 1: Similarities and Differences between Service-Attribute Model and Service-Cost Model	53
Table 2: Pairwise Analysis.....	54
Table 3: Pooled Correlation Matrix	55
Table 4: Path Estimates for Integrated Model and Alternative Models.....	55
Table 5: Moderator Testing Using Subgroup Analysis in the Integrated Model.....	56
Figure 1a: Service-Attribute Model.....	57
Figure 1b: Service-Cost Model.....	57
Figure 1c: Integrated ‘Dual-Process’ Wait Model.....	57
Figure 2: Conceptual Framework: An Integrated ‘Dual-Process’ Model of Customer Wait.....	58
Essay 2 – Hedonic Messaging In New Product Preannouncement	59

Theoretical Background.....	62
Intertemporal Preference.....	62
Opportunity Cost Salience Mechanism	65
Future Time Preference Mechanism.....	66
Hedonic vs. Utilitarian.....	68
Summary and Hypotheses.....	71
Study 1	72
Design, Methods, and Participants.....	73
Results.....	74
Discussion.....	75
Study 2	76
Design, Methods, and Participants.....	76
Results.....	78
Discussion.....	80
Study 3	80
Design, Methods, and Participants.....	81
Results.....	83
Discussion.....	87
Study 4	88
Design, Methods, and Participants.....	89
Results.....	90
Discussion.....	92
General Discussion	92

Theoretical Contributions	94
Managerial Implications	96
Limitations	97
Reference	99
Figures.....	103
Figure 1: Conceptual Framework	103
Figure 2: Comparison of Likelihood to Wait in Study 1	104
Figure 3: Comparison of Discount Rate in Study 2.....	105
Figure 4: Comparison of Willingness to Wait in Study 3.....	106
Figure 5: Moderated Mediation for the Opportunity Cost Route in Study 3.....	107
Figure 6: Moderated Mediation for the Time Preference Route in Study 3	107
Figure 7: Comparison of Willingness to Wait in Study 4.....	108
Figure 8: Comparison of Estimated Parameter for Opportunity Cost	109
Figure 9: Comparison of Estimated Parameter for Time Preference.....	110
Essay 3 – Strategic Customers in Loyalty Program: A Goal Theory Perspective.....	111
Theoretical Background.....	117
The Theory of Reasoned Goal Pursuit.....	117
Adapting TRGP to the Context of Reward Redemptions in Loyalty Programs	120
Strategic vs. Non-Strategic Customers	126
Study 1	134
Design and Methods	134
Results.....	137
Discussion.....	141

Study 2	142
Design and Methods	143
Results.....	144
Discussion.....	145
Study 3	146
Design and Methods	147
Results.....	148
Discussion.....	150
General Discussion	151
The Goal Theory Perspective View	152
The Symbolic Consumption Goal.....	153
Strategic Customer as Maximizers	155
Strategic Customers as Holistic Thinkers.....	155
Taking Care of Strategic Customers.....	156
Limitations and Future Research	157
Reference	159
Tables and Figures	165
Table 1: Construct Reliability, Validity, and Intercorrelation in Study 1.....	165
Table 2: Results for the Full Model and Subgroup Models in Study 1	165
Table 3: Results for the Full Model and Subgroup Models in Study 2	166
Table 4: Results for the Full Model and Subgroup Models in Study 3	166
Figure 1: Conceptual Framework of the Theory of Reasoned Goal Pursuit (TRGP). 167	
Figure 2: Operational Framework of TRGP in the Reward Redemption Context	167

Figure 3: Typology of Customers in Loyalty Program.....	168
Figure 4: Proposed Differences between Strategic Vs Non-Strategic Customers.....	168
Figure 5: Result of the Fitted Model in Study 1	169
Figure 6: Alternative Models used in Study 1	169
Figure 7: Result of the Fitted Model in Study 2	170
Figure 8: A Navon’s Letter Stimulus Example: A Letter “D” Composed by The Letter “K”	170
Figure 9: Relevance Scale in Study 3	170
Figure 10: Result of the Fitted Model in Study 3	171
Conclusion	172
Reference	177
BIBLIOGRAPHY.....	178
Appendices.....	193
Essay 1 Appendix	193
Table: Seed Paper Summary.....	193
Essay 2 Appendix: Supplemental Information	195
Demographic Information of Participants in Studies.....	195
Stimuli Used in Studies.....	195
Attention Checks Used in Studies.....	200
Essay 3 Appendix 1	201
Table: Measurement Items.....	201
Essay 3 Appendix 2: Supplemental Information	203
Construct Reliability, Validity, and Intercorrelation in Study 2.....	203

Construct Reliability, Validity, and Intercorrelation in Study 3 203

Demographic Information of Participants in Studies..... 203

Stimuli Used in Studies..... 203

Attention Checks Used in Studies..... 210

LIST OF TABLES

Essay 1 – Dual Perspectives of Customer Wait Time Perception: A Conceptual Framework and Meta-Analysis	8
Table 1: Similarities and Differences between Service-Attribute Model and Service-Cost Model	53
Table 2: Pairwise Analysis.....	54
Table 3: Pooled Correlation Matrix	55
Table 4: Path Estimates for Integrated Model and Alternative Models.....	55
Table 5: Moderator Testing Using Subgroup Analysis in the Integrated Model.....	56
Essay 3 – Strategic Customers in Loyalty Program: A Goal Theory Perspective.....	111
Table 1: Construct Reliability, Validity, and Intercorrelation in Study 1.....	165
Table 2: Results for the Full Model and Subgroup Models in Study 1	165
Table 3: Results for the Full Model and Subgroup Models in Study 2	166
Table 4: Results for the Full Model and Subgroup Models in Study 3	166

LIST OF FIGURES

Overview.....	1
Figure: Interrelationships among Three Essays.....	7
Essay 1 – Dual Perspectives of Customer Wait Time Perception: A Conceptual Framework and Meta-Analysis.....	8
Figure 1a: Service-Attribute Model.....	57
Figure 1b: Service-Cost Model.....	57
Figure 1c: Integrated ‘Dual-Process’ Wait Model.....	57
Figure 2: Conceptual Framework: An Integrated ‘Dual-Process’ Model of Customer Wait.....	58
Essay 2 – Hedonic Messaging In New Product Preannouncement	59
Figure 1: Conceptual Framework	103
Figure 2: Comparison of Likelihood to Wait in Study 1	104
Figure 3: Comparison of Discount Rate in Study 2.....	105
Figure 4: Comparison of Willingness to Wait in Study 3.....	106
Figure 5: Moderated Mediation for the Opportunity Cost Route in Study 3.....	107
Figure 6: Moderated Mediation for the Time Preference Route in Study 3	107
Figure 7: Comparison of Willingness to Wait in Study 4.....	108
Figure 8: Comparison of Estimated Parameter for Opportunity Cost	109
Figure 9: Comparison of Estimated Parameter for Time Preference.....	110
Essay 3 – Strategic Customers in Loyalty Program: A Goal Theory Perspective.....	111
Figure 1: Conceptual Framework of the Theory of Reasoned Goal Pursuit (TRGP). 167	

Figure 2: Operational Framework of TRGP in the Reward Redemption Context	167
Figure 3: Typology of Customers in Loyalty Program.....	168
Figure 4: Proposed Differences between Strategic Vs Non-Strategic Customers.....	168
Figure 5: Result of the Fitted Model in Study 1	169
Figure 6: Alternative Models used in Study 1	169
Figure 7: Result of the Fitted Model in Study 2	170
Figure 8: A Navon’s Letter Stimulus Example: A Letter “D” Composed by The Letter “K”	170
Figure 9: Relevance Scale in Study 3	170
Figure 10: Result of the Fitted Model in Study 3	171

OVERVIEW

Waiting is an important topic that deserves more scholarly examination given its ubiquity, its substantial impact, and its diversity and complexity. Particularly, waiting is a pervasive issue in the sense that it is something that most people can relate to, and it is something that firms can hardly eliminate. We have all waited on something on at least some occasions, such as waiting for checking out in the store during the Black Friday sales. Also, waiting is almost impossible to eliminate due to pragmatic reasons – no firms can afford the cost of doing so. However, waiting has significant impacts on both customers and firms. Waiting is unpleasant to customers because it wastes their precious resource – time. Waiting is also undesired by firms because it often results in detriments to their marketing strategies and business performance.

Unfortunately, the negative impacts of waiting cannot be simply mitigated by a simple, generic solution due to the diversity and complexity of waiting. Particularly, customers can wait for different things, such as being served in the restaurant, getting a new product to be launched soon, and cumulating points for a reward in the loyalty program. Also, waits can have a variety of meanings to the customer, including a waste of time, an exchange time for utility, and delayed gratification. Further, customers might have diverse controls in waiting: they might be forced to wait, they might be able to decide whether to wait or not, and they might even choose to wait. In short, all these differences complicate offering a simple, generic solution to waiting issues.

One potential approach to explore firms' solutions to waiting issues is to understand the customers in waits. Understanding customers is central in contemporary marketing paradigms such as market orientation (Jaworski and Kohli 1993; Kohli and Jaworski 1990; Narver and Slater 1990), relationship marketing (Grönroos 1994, 1997; Morgan and Hunt 1994), and the service dominant

logic (Vargo and Lusch 2004, 2008). Particularly, understanding, disseminating, and responding to customers' needs and wants are the three core elements in the market orientation paradigm (Kohli and Jaworski 1990). Aggregate evidence shows that the consequences of market orientation include better quantitative organizational performance (i.e., profit, sales, market shares, etc.), better qualitative customer consequences (i.e., quality, loyalty, satisfaction, etc.), and better internal consequences (i.e., employee commitment, team spirit, job satisfaction, innovativeness, etc.; Kirca, Jayachandran, and Bearden 2005).

The role of customers is even more emphasized in relationship marketing, as firms are required not only to understand but also to maintain a long-term relationship with their customers by winning their trust and commitment to the relationship (Grönroos 1997; Morgan and Hunt 1994). A strong relationship with customers leads to better quantitative performance and qualitative customer consequences as well (Palmatier et al. 2006). At the same time, customers are not merely passive receivers in the relationship as per the service dominant logic: they are co-producers of service and co-creators of value (Payne, Storbacka, and Frow 2008; Vargo and Lusch 2004). In short, these contemporary marketing philosophies and paradigms all point to one common denominator, in that customers are increasingly taking more notable and proactive roles in firm-initiated marketing activities.

Therefore, my dissertation will attempt to offer firms potential solutions to waiting issues by investigating customers' perceptions, thoughts, emotions, intentions, and behaviors in waits. Specifically, I examine customers' perceptions and responses to waits in the service (Essay 1), customers' decision-making about waiting for new products (Essay 2), and customers' intention to delay their redemptions of rewards in loyalty programs (Essay 3).

I selected these three waiting scenarios to cover the diversity inherent in waiting issues and yet sharing a commonality of ‘delay’: waits can occur in various contexts, with different meanings, and with distinct motivations. Specifically, these three waiting scenarios (in the three essays) cover delays in receiving services, products, and rewards; include various meanings of waits such as time loss, time-utility exchange, and delayed gratification; and concern customers’ reactive and proactive motivations about the wait. The contexts of these three studies diversify into services, products, and rewards - rewards are distinguished from products and services in the sense that rewards are considered ‘free’ though with an opportunity cost while the others are not. Moreover, a delay in a ‘service wait’ often means a time loss as it is extra cost to customers but without gain¹; a delay in a ‘new product’ wait is a time-utility exchange as it is essentially a tradeoff between future better product vs. existing current product; and a delay in a ‘reward wait’ is a delayed gratification as customers resist the impulse to attain an immediate reward in favor of a future one. Finally, customers are passive, sometimes beyond their control, in service waits as it is merely a waste of time; they can be either passive or proactive in product waits, which is largely within their control; and they are proactive in reward waits, which is completely initiated by them. Given the differences among these waiting scenarios, the focus in each essay varies as well: Essay 1 examines customers’ perceptions and responses to service waits given limited control available in the wait; Essay 2 looks at customers’ decision-making process as the wait focuses on tradeoffs between remote vs. proximal new product launch; and Essay 3 examines the formation of customers’ redemption intentions in loyalty programs as well as differences between strategic vs. non-strategic customers in their intentions to redeem.

¹ In certain cases, wait time can infer better service quality, but not real gains for customers.

The selection of these three waiting scenarios is also theoretically interesting in the sense that they represent different stages of customers' experiences in their customer journey (Lemon and Verhoef 2016). Customer experience is an emerging concept that overarches various topics and concepts in the evolution of the philosophy of customer centricity. The customer experience model, in part, owes its origin to relationship marketing (Berry 1995; Sheth and Parvatiyar 2000), customer relationship management (Kumar and Reinartz 2006), and customer engagement model (Brodie et al. 2011; Kumar et al. 2010). Formally, customer experience is defined as "*a multidimensional construct focusing on a customer's cognitive, emotional, behavioral, sensorial, and social responses to a firm's offerings during the customer's entire purchase journey* (Lemon and Verhoef 2016, p. 71)", and it is "a customer's journey with the firm over time during the purchase cycle across multiple touch points (p. 74)". Broadly speaking, a customer experience can be divided into the pre-purchase, the purchase, and the post-purchase stages, yet each experience is dynamically interrelated, being both influenced by prior experiences and influencing future experiences. The three waiting scenarios correspond to these stages: the service wait in Essay 1 is in the purchase stage; the product wait in Essay 2 is in the pre-purchase stage; and the reward wait in Essay 3 is in the post-purchase stage. Notably, the reward wait is considered in the post-purchase stage as these rewards are naturally linked to post-purchase, and customer behavior can be largely considered as engagement in future purchases.

Finally, these three essays are conducted using different research methodology: Essay 1 examining delay in a 'service wait' uses meta-analytic structural equation modeling, Essay 2 examining delay in a 'new product wait' uses experimental design, and Essay 3 examining delay in a 'reward wait' uses experiment-based structural equation modeling. The selection of these

robust methodologies is based on both rigor and relevance to the corresponding research questions raised in the three essays. The figure below summarizes the interrelations among three essays.

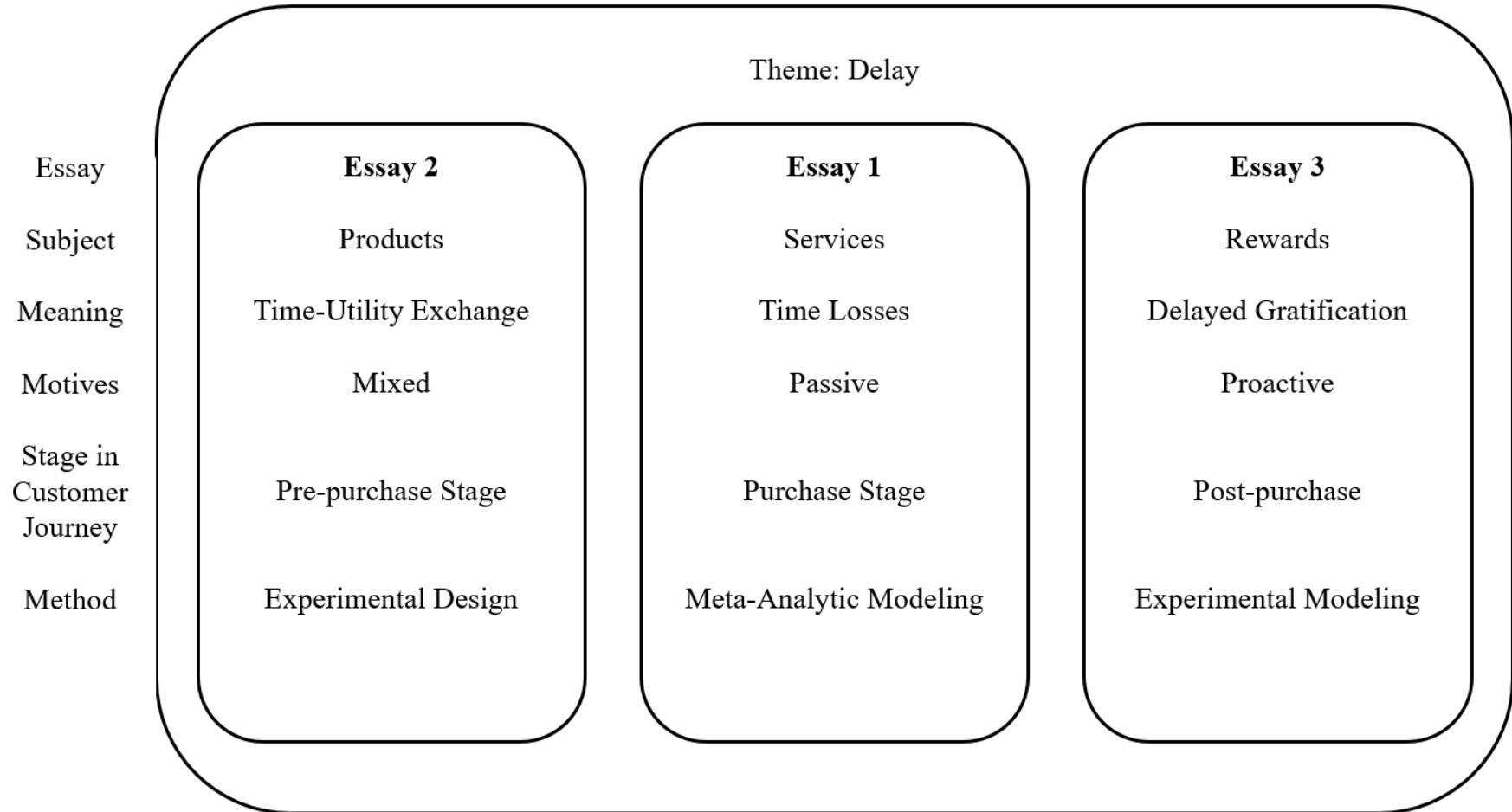
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Figure

Figure: Interrelationships among Three Essays



**ESSAY 1 – DUAL PERSPECTIVES OF CUSTOMER WAIT TIME PERCEPTION: A
CONCEPTUAL FRAMEWORK AND META-ANALYSIS**

Waits in service are almost inevitable to everyone despite the efforts in service resource allocation and wait time minimization (Taylor 1994). Marketing scholars have been investigating customers' reactions to service waits and attempting to minimize the negative effects of service waits on customers' service satisfaction and, subsequently on their purchase intention, loyalty, word-of-mouth, complaint, and switching behavior (e.g., Batt and Terwiesch 2015; Cowley 2005; Dahm et al. 2018; Hui and Tse 1996; Kumar, Kalwani, and Dada 1997; Kumar and Krishnamurthy 2008; Taylor 1994; Wang, Hong, and Zhou 2018; Zhou and Soman 2003).

Past studies primarily applied the expectancy disconfirmation model (Oliver 2014) and the psychological cost model (Osuna 1985) to explain customers' reactions to waits in service. The expectancy disconfirmation model suggests that customer satisfaction is determined jointly by expectation, disconfirmation, and performance, as well as emotions evoked by satisfaction or dissatisfaction about specific attributes (Oliver 2014). Following this model, customers' satisfaction about the service can be impacted directly, and indirectly via evoked anger, by the acceptability of the wait in the service, which is a joint result of expected wait time, perceived wait time (subjective time), and disconfirmation.

On the other hand, the psychological cost model suggests that customer satisfaction is influenced by negative emotions evoked by the customer's anxiety and uneasiness in the wait due to the sense of waste and the uncertainty about the remaining wait time respectively (Osuna 1985). Specifically, the anticipation of the time loss in a service wait is an agent for psychological stress, the intensity of which increases during the wait process. Thus, anxiety provoked by psychological

stress is a marginal increasing function of waiting time. Moreover, anger is also evoked due to the wait time and uncertainty. Customers' wait time is wasted because time cannot be inventoried or replaced (Soman 2001), and such a waste is out of customers' control because of the uncertainty about the wait length (Taylor 1994). As a result, customers get angry in waits blaming the service provider for the time loss. Finally, anger reduces service satisfaction because it biases evaluation in the negative direction (Gardner 1985; Mayer et al. 1992).

These two models reflect two distinct perspectives on service waits. The former model treats service wait as an integral service attribute in the process to receive the service, whereas the latter considers service wait as an extra service cost to the customer's access to the service. Admittedly, while some past studies have implicitly used both perspectives in their examination of service waits (e.g., Cameron et al. 2003; Houston, Bettencourt, and Wenger 1998; Pruyn and Smidts 1998; Taylor 1994), but several theoretical inconsistencies call for the integration of the two perspectives. Particularly, such a need for theoretical integration arises because of three research questions with equivocal arguments in extant literature (as illustrated below). These are: (1) Under what condition is a specific measure of wait time (i.e., disconfirmation vs. subjective time) more diagnostic in influencing wait acceptability?; (2) Under what condition is the elicitation of customer anger in the wait more as a result of anxiety (related to time loss) vs. wait unacceptability (related to transgression)?; and (3) Under what condition is customer service satisfaction impacted more by wait unacceptability (cognitive response) vs. anger (emotional response) as a result of the wait?

Regarding the first research question, the two perspectives place differential emphasis on wait time measures. The service-attribute perspective applies expectancy disconfirmation model, centering around disconfirmation (Oliver 1980, 2014), whereas the service-cost view utilizes

psychological cost model, focusing on the impact of subjective time (Hui, Dube, and Chebat 1997; Osuna 1985). Such inconsistency might confuse service managers who are choosing wait management strategies to improve customers' perceptions about wait length. Strategies to reduce subjective time often involve distracting customers' attention away from the passage of time (Cameron et al. 2003; Taylor 1995), because the accounting of wait time requires attentional resources (Hornik and Zakay 1996; Zakay 1989) whereas strategies to reduce disconfirmation involve providing explicit information about the wait time, evoking conscious accounting for the passage of time (Hui and Tse 1996; Kumar, Kalwani, and Dada 1997)

Regarding the second research question, both perspectives agree that anger is the negative emotional (affective) outcome of service waits, but they explain the elicitation of anger in different ways. In the service-attribute view, anger is a result of unacceptable waits because wait is seen as an obstacle to need satisfaction and the violation of implicit promise to provide prompt service (Taylor 1994). In the service-cost perspective, however, anger is a result of the realization of time loss which customers are anxious to avoid in the wait (Osuna 1985). This divergence in perspective complicates service managers' wait management strategies aimed toward easing customers' anger. For example, customer anger evoked due to an unfair process in the wait and deemed unacceptable could be dealt with by enforcing the first-in-first-out rule in the wait process (Zhou and Soman 2008) but this strategy does not necessarily minimize perception of time loss and might prevent optimal resource allocation, evoking customer anger due to more time being wasted (Taylor 1994).

Regarding the third research question, the two perspectives have divergent arguments about the primary mechanism underlying the formation of service satisfaction, despite both being grounded on the same 'mood congruency' effect (Forgas 1995; Gardner 1985; Mayer et al. 1992). The service-attribute perspective suggests that memory retrieval is the primary mechanism and so

wait acceptability is the primary antecedent of service satisfaction (Durrande-Moreau and Usunier 1999; Kumar, Kalwani, and Dada 1997); whereas the service-cost perspective contends that emotional association is the primary mechanism and thus anger has greater influence on service satisfaction (Menon and Dube 2004; Miller, Kahn, and Luce 2008). This divergence could lead to disparate priorities in service managers' resource allocation strategies, especially when it comes to significant investments. For example, should a service manager invest in the service flow optimization, which reduces the wait time and minimizes customers' anger about the time wasted, or in the wait experience improvement that manages customers' wait expectation and keeps customers happy in the wait?

These research questions point to the need for theoretical integration of the two perspectives (and models) and the identification of boundary conditions that will help reconcile inconsistent findings in the literature. In this essay, we review the two key wait models grounded in two theoretical perspectives on waits, discuss their similarities and differences in assumptions and process mechanisms, and propose an integrated 'dual-process' model of customer wait. Particularly, we argue that inconsistencies are as a result of: (a) distinct assumptions underlying customers' expectations about the wait time, (b) different motivational directions in viewing the wait, and (c) the ease of access to wait-related information from memory. More importantly, we provide reconciliation by examining four moderators built around the three research questions on the diagnostic measure of wait time, the source of anger, and the key mechanism of service satisfaction formation.

On the first research question, the service-attribute model assumes that customers' initial and subsequent wait expectations are point estimates of the 'most likely' wait times. However, the service-cost model postulates that customers hold a probability distribution of the possible wait

times. This difference in the assumption of wait expectation leads to a distinction in the meaning of new wait-related information to customers, resulting in the divergent use of subjective time and disconfirmation (Bolton 1998; Festjens and Janiszewski 2015). As such, to reconcile the diagnosticity of these two wait times (i.e., subjective time vs. disconfirmation) in the integrated dual-perspective model, we examine two moderators: (a) timing of the study, “*during the wait*” vs. “*after the wait*” and (b) “*known wait*” vs. “*unknown wait*”. On the second research question, the difference in the source of anger reflects a distinction in the motivation underlying the wait. We explore whether customers could have avoided the wait beforehand by examining the moderator, ‘*wait with regret*’ vs. ‘*wait without regret*’, to reconcile the primary source of anger in the integrated ‘dual perspective’ model. On the third research question, notably, the use of memory retrieval approach is relevant to the ease of access of information from memory. As such, to reconcile this difference we explore the importance of the service as a potential moderator, ‘*wait for important service*’ vs. ‘*wait for unimportant service*’, as it influences the accessibility of the wait in customers’ memory.

Our paper is organized as follows. We first discuss the two conceptualizations of the customer service wait models: service-attribute model and service-cost model. Next we advance a conceptual framework incorporating the ‘dual-perspective’ integrated model of customer wait, and provide moderator-influenced reconciliation toward integration surrounding the three research questions. We conduct a structural equation modeling-based meta-analysis using 87 studies from 69 articles and discuss their results. The paper concludes with a discussion of theoretical insights and managerial implications.

Two Conceptualizations of Customer Wait

Service-Attribute Model of Customer Wait

Studies based on the service-attribute model center the impact of a service wait around subjective time (i.e., perceived wait length) and its discrepancy from the expected wait length (i.e., disconfirmation). Specifically, disconfirmation and subjective time form the cognitive evaluation of wait (i.e., wait acceptability), which in turn, both directly and indirectly via anger, impacts service satisfaction. Figure 1a summarizes the service-attribute model.

-----Insert Figure 1a Here-----

Following the expectancy disconfirmation literature (Oliver 1980, 2014; Szymanski and Henard 2001), subjective time is a proxy for service provider's performance in the service-attribute model, and it cumulates with the perceived passage of time during the wait. Notably, performance is ex post facto and works in the post-consumption context. Thus, subjective time has no influence on wait acceptability until the wait ends.

In contrast, disconfirmation represents the difference between subjective time and expected wait time, and it is first generated when the customer's wait does not end after the elapse of the initial wait time, and the waiting process continues beyond that time. Notably, disconfirmation continues to accumulate along the passage of time like subjective time does. However, its rate of accumulation is marked by discrete increases, as a result of additive disconfirmations at multiple points during the wait derived from updated expectations. Specifically, customers update their expectations during the wait process in the "anchoring and adjustment" manner – the prior expectation is adjusted by successive pieces of new information during the wait (Bolton 1998; Hogarth and Einhorn 1992; Homburg, Koschate, and Hoyer 2006). For example, the service

recovery literature suggests that the impact of two negative disconfirmations add up and have an additive effect causing greater dissatisfaction (Bitner 1990; Joireman et al. 2013; de Matos, Henrique, and Alberto Vargas Rossi 2007; Smith and Bolton 1998). At the end of the wait, disconfirmation when falling outside the customer's zone of tolerance becomes a proxy for the contrast effect, wherein customers exaggerate its impact on wait unacceptability.

Furthermore, unacceptable waits incur losses and transgressions, which evoke anger. Anger is a high arousal, negative emotion with specific causal attribution. According to the cognitive view of emotion (Beck 1976; Roseman 1984), anger is the reaction towards the incurred loss and transgression such as the violation of an implicit promise, perceived inequity, incurred financial loss, etc. (Taylor 1994), which is typically known after the wait and requires an evaluation of perceived wait length. This prediction is also consistent with the attribution affect model (Weiner 1985) which describes a two-stage process in the formation of emotion². Individuals who experience outcomes elicit a combination of outcome-generated and attribution-related affect. The first stage is based upon the outcome of the event and the second stage relates to the causal attribution of the outcome predicated on locus, controllability, and stability. As attribution theory suggests, customers examine the causality of the wait by asking whether it is caused by internal or external factors (locus), whether it is controllable (controllability), and whether it occurs frequently (stability). From this viewpoint, anger is an emotion elicited in negative outcomes due to others' controllability. Customers often attribute service waits externally and question the service provider's controllability over the situation. Once the unacceptable wait is attributed to the service provider, it evokes anger. Finally, moods bias evaluations in a mood-congruent direction both

² Given attribution affect theory (Weiner 1985), we do not expect a direct impact from either subjective time or disconfirmation on anger. In this sense, customers must have an evaluation first, i.e., wait acceptability before generating outcome-specific emotions, i.e., anger.

directly, via association between mood states and affective reactions, and indirectly by making mood congruent items more accessible in memory (Forgas 1995; Gardner 1985). In this sense, negative emotions in waits can also result in biased evaluation when the service itself does not evoke strong affective reactions (Taylor 1994). Thus, both cognitive and affective responses determine customers' service satisfaction in the service-attribute model.

Service-Cost Model of Customer Wait

Studies using the service-cost model center the impact of a service wait around the passage of time, emphasizing its impact on anxiety and anger (Hui, Dube, and Chebat 1997; Hui and Tse 1996; Taylor 1994). Specifically, subjective time directly, and indirectly via anxiety, leads to anger, which in turn negatively influences service satisfaction. Figure 1b summarizes the service-cost model.

-----Insert Figure 1b Here-----

Following the psychological cost model (Osuna 1985), anxiety is an emotional response to stress caused by the uncertainty related to the anticipated time loss, and anger is the reaction to incurred time loss (Menon and Dube 2004). Anxiety is low arousal, low agency in nature without any specific causal attribution. This explanation is aligned with the cognitive view of emotions (Beck 1976; Roseman 1984) in that anxiety is caused by threats and anger is caused by losses, because the unpredictability in the amount of wasted time is a threat to more potential time loss; and the perceived passage of time or the sense of wasting time reflects the time loss. Customers feel anxious when they have no control over the situation even when the wait is under the firm's control, and subsequently leads to anger when they attribute the time loss (or its uncertainty) to the service provider.

Osuna (1985) mathematically showed that the stress of time loss is an increasing function of the time during the wait period, and thus anxiety, the response to stress, accumulates with the passage of wait time (i.e., subjective time). The psychological cost model assumes that an individual has a non-decreasing disutility function of time loss ($H(u)$) as well as a belief of bounded probability distribution for the total wait time for a service event ($F(u)$). Accordingly, the stress associated with different levels of wait time is defined as the expected cost of the wait ($E[H(t)] = \int_0^{\infty} H(u)dF(u)$). Osuna (1985) proved that this expected cost of the wait ($E[H(t)|t > T] = \int_0^{\infty} H(u)dF^*(u)$, where $F^*(u) = \Pr(t \leq u|t > T)$ is the conditional distribution) is an increasing function of wait time (T). In other words, customers' stress increase over time, because they infer a greater expected total wait time as time elapses. Also, he showed that the conclusion holds even in cases where customers update their beliefs about the probability distribution of the wait time using elapsed time as a piece of information. In sum, increase in subjective time positively relates to increase in anxiety.

Anger as a response to incurred losses, accumulates with the perception of time passage or the strengthening sense of time wasted. Because time cannot be inventoried or replaced (Soman 2001), customers' time in the wait is wasted, and so anger is evoked during the wait. However, customers' anger depends on their perception of the valuation of wasted time. The valuation of time is a double-kinked function, which assumes insensitivity at the reference level, followed by increasing, then, diminishing marginal utility (Festjens and Janiszewski 2015). This double-kinked function is a combined result of two sources of time valuation: the increasing time value associated with better opportunities for utilization, and the decreasing time value associated with resource abundance. For small amounts of time loss, customers display a zone of indifference because

meaningful utilization of time is rarely possible. For moderate time loss, the value of wasted time increases at an increasing rate (i.e., increasing disutility) because there are better opportunities for its usage (e.g., 1.5 hours allows one to complete three 30-minute activities *or* one 1.5-hour activity, whereas three 30-minute blocks allow one to complete three 30-minute activities). However, for large amounts of wasted time diminishing marginal disutility sets in due to resource abundance and, therefore, the valuation of time wanes. In this sense, anger is evoked during the wait and appears as S-shaped function of subjective time.

Finally, in the service-cost model negative emotions bias customers toward feeling decreased customer satisfaction which is consistent with the mood-congruence bias effect (Forgas 1995; Gardner 1985; Mayer et al. 1992). Theoretically, affect-as-information model suggests that individuals refer to their emotions as a judgment heuristic (Forgas 1995). This heuristic requires that mood be either positive or negative to bias the judgment in a mood-congruent direction. However, unlike anger, anxiety as an emotion lacks valence, i.e., is neutral, even though it may be high on arousal (Russell and Barrett 1999). Hence, we do not model a direct relationship between anxiety and service satisfaction in the service-cost model. Thus, anger is an antecedent of customers' service satisfaction.

An Integrated 'Dual-Perspective' Model of Customer Wait: A Conceptual Framework

In this section, we propose an integrated 'dual-perspective' model (see Figure 1c) and conceptual framework of customer wait (see Figure 2), discuss similarities and differences in the assumptions and processes of the two models (summarized in Table 1), and provide reconciliation toward the integration of the two models surrounding three research questions involving diagnostic measure of wait time (subjective vs. disconfirmation); elicitation of anger (anxiety vs. wait

acceptability); and service satisfaction (wait acceptability vs. anger). We discuss four moderators that help explain the efficacy of each of the two models in the integrated framework.

-----Insert Figure 1c, Figure 2 & Table 1 Here-----

Research Question 1: Diagnostic Measure – Subjective Time vs. Disconfirmation

The two models (i.e., service-attribute and service-cost models) share some theoretical similarities. Both models are premised on the perception of subjective time and how such time perception results in cognitive and affective responses, thereby, influencing service satisfaction during the wait process. Both models use the cognitive timer model to describe the formation of subjective time, emphasizing the critical role of attention as resource (Hornik and Zakay 1996; Zakay 1989). The resource allocation model (Zakay 1989) argues that people allocate limited attentional resources to different cognitive functions, including tracking for time intervals and durations with a cognitive timer (Hornik and Zakay 1996). Therefore, distracting attention from the cognitive timer reduces allocated attentional resources, making time tracking less frequent and subjective time underestimated. In this sense, both models support wait management strategies shifting customers' attention away from the wait, such as providing filling activities during the wait (Munichor and Rafaeli 2007; Taylor 1994, 1995).

However, the two models diverge in their assumptions of customers' wait expectations. The service-attribute model assumes customers' expectations about the wait time are point estimates of the 'most likely' wait time (Bolton 1998; Zeithaml, Berry, and Parasuraman 1993), whereas the service-cost model postulates it as the probability distribution of the wait time derived from experience instead (Osuna 1985). In other words, customers' wait expectation is a predictive point estimate in the former model but a normative probability distribution in the latter model.

Notably, this difference in the assumption leads to a distinction in the meaning of new information to customers, resulting in divergent use of subjective time in the wait. In the service-attribute model, the ‘point estimate’ expectation implies that an unmet expectation (i.e., disconfirmation) is a piece of new information, and thus the process of waiting involves a series of discrete expectations that are periodically revised and updated during the wait experience until the service is delivered (Bolton 1998; Hogarth and Einhorn 1992; Homburg, Koschate, and Hoyer 2006). By contrast, the ‘probability distribution’ expectation in the service-cost model indicates that the passage of time (i.e., subjective time) is the new information, and thus the process of waiting involves continuous processing of the value of elapsed time following a S-shape function (Festjens and Janiszewski 2015).

Moderator 1: During vs. After the Wait

To reconcile the two diagnostic measures (subjective time vs. disconfirmation), we propose timing of the study, ‘during’ vs. ‘after’ the wait as a potential moderator. The role of subjective time differs in the two models: the service-attribute model considers its impact only after the wait as a measure of the service provider’s performance in the wait, but the service-cost model treats it as the primary driver of anxiety during the wait. Put differently, in the service-attribute model subjective time is a proxy for the service provider’s performance which works only in the post-consumption evaluation (i.e., ex post facto), and consequently, its independent effect on wait acceptability is activated ‘after the wait’. However, in the service-cost model the continual processing of subjective time ‘during the wait’ invokes prospective time orientation which draws on online processing of information style wherein individual judgments are strongly influenced by primacy effects (Lim, Kum, and Lee 2015). However, the effect of disconfirmation on wait

acceptability happens at discrete points during the wait if, and when, expectations are revised, and its effect on wait acceptability is also manifested after the wait. This ‘after the wait’ reasoning aligns with retrospective time orientation which draws on memory-based processing style wherein individual judgments are strongly influenced by recency effects (Lim, Kum, and Lee 2015). As such, wait acceptability as a cognitive evaluation of the wait is determined by disconfirmation during the wait and jointly by cumulative disconfirmation and subjective time after the wait. Thus, we posit:

H1a: Subjective time will have a significant influence on anxiety both ‘during the wait’ and ‘after the wait’ in the service-cost component of the integrated model.

H1b: Subjective time will have a greater significant impact on wait acceptability ‘after the wait’ (vs. ‘during the wait’) in the service-attribute component of the integrated model.

H1c: Disconfirmation will have a greater significant impact on wait acceptability ‘during the wait’ (vs. ‘after the wait’) in the service-attribute component of the integrated model.

Moderator 2: Known vs. Unknown Wait

To reconcile the two diagnostic measures (subjective time vs. disconfirmation), we propose a second moderator, ‘known’ vs. ‘unknown’ wait. As noted earlier, the two models have distinct assumptions about customers’ wait expectation: it is assumed as a predictive point estimate in the service-attribute model but a normative probability distribution in the service-cost model. These two assumptions reflect two streams of comparison standards in customer expectation literature: the “could be” expectation and the “should-be” expectation (Miller, Kahn, and Luce 2008; Zeithaml, Berry, and Parasuraman 1993). The “could be” expectation is a predictive description about what the service is likely to be in a given circumstance, whereas the “should be” expectation is a normative description about what the service should be according to customers’ desires, needs, and wants. In service waits, customers have a “should be” expectation about the wait length in service, which is a normative probability distribution of possible wait times derived from their

experience, desires, and needs, but they also generate a series of “could be” expectations for a wait, which are point estimates with specific circumstances taken into account. Notably, both the “could be” and the “should be” expectations matter when customers evaluate the service or the product as they provide evaluative congruity (Szymanski and Henard 2001; Tse and Wilton 1988).

In this sense, the service-attribute model, which assumes customers’ wait expectations are point estimates, essentially uses the “could be” expectation in which disconfirmation is used as a piece of new information, while the service-cost model, which assumes customers’ wait expectation as a probability distribution, uses the “should be” expectation in which subjective time is used a new piece of information. To capture this difference, we categorize waits into ‘known’ and ‘unknown’ waits based on whether or not customers have a confident “could be” expectation: customers in known waits have a confident “could be” expectation about the wait time, but those in unknown waits do not have the same. The use of confidence in the “could be” expectation as the classification criterion comes from the nature of the two expectations. The “should be” expectation is relatively stable that is anteceded by individual, stable factors and personal needs, while the “could be” expectation is context-dependent influenced by temporal, usually short-term, personal and situational factors such as customers’ perceptions about the service and potential alternatives (Zeithaml, Berry, and Parasuraman 1993). In other words, customers’ needs and wants about the wait time are more consistent across diverse service contexts, but customers’ prediction of the wait time varies. Moreover, expectations, as beliefs, are relevant to customers’ confidence, which is a nonvalenced cognitive component reflecting the degree of conviction or certainty with which the belief is held (Spreng and Page 2001). Given that the wait prediction is more likely to vary, customers’ confidence in their expectation is best captured by their confidence in their “could be” expectation. Therefore, customers in known waits will be more likely to utilize their “could

be” expectation and rely more on disconfirmation in the evaluation of the wait time (i.e., wait acceptability). In contrast, customers in unknown waits are less likely to utilize their ‘could be’ expectation and more likely to utilize subjective time. Thus, we posit:

H2a: Disconfirmation (vs. subjective time) will have a greater significant impact on wait acceptability in ‘known waits’ in the service-attribute component of the integrated model.

H2b: Subjective time (vs. disconfirmation) will have a greater significant impact on wait acceptability in ‘unknown waits’ in the service-attribute component of the integrated model.

Research Question 2: Elicitation of Anger – Wait Acceptability vs. Anxiety

The two models (i.e., service-attribute and service-cost models) share some theoretical similarities related to the elicitation of anger in customer waits. Both models apply Weiner's (1985) appraisal-attribution theory to examine anger evoked in the wait. Specifically, individuals have a general positive or negative reaction to an event following its outcome, after which they seek a causal ascription following the outcome appraisal and the immediate affective reaction that generates a specific emotion (Menon and Dube 2004; Weiner 1985). Both models contend service waits as negative events in service delivery and suggest that more anger is evoked when service waits are attributed to the service provider’s control due to their limited capability or negligence (Beck 1976; Menon and Dube 2004; Smith and Ellsworth 1985). For instance, customers display greater anger when the service provider is found to violate the first-in-first-out rule in the wait, because such violation is clearly under the service provider’s control. Likewise, both models support dispositional attribution avoiding strategies by firms, such as selecting wait information to tell customers (Hui and Tse 1996; Whitt 1999), enforcing the first-in-first-out rule (Cowley 2005; Katz, Larson, and Larson 1991; Zhou and Soman 2008), and hiding idling employees (Baker and Cameron 1996).

However, the two models adopt distinct motivational standpoints when explaining the elicitation of anger in the wait. Specifically, the service-attribute model adopts an appetitive motivational view of the wait by focusing on wait acceptability in the elicitation of anger because a wait blocks customers' need satisfaction. In contrast, the service-cost model adopts an aversive motivational view centering on anxiety which leads to anger when time loss is incurred (Miller, Kahn, and Luce 2008). Appetitive and aversive motivational systems are core elements in the organization of behavior: the appetitive system organizes behavior by approaching desired goals, while the aversive system organizes behavior by avoiding threats (Arnold and Reynolds 2012; Carver and Harmon-Jones 2009; Miller, Kahn, and Luce 2008). Consistent with the dual motivational systems, anger as a negative emotional response is an internal mechanism that signals both obstacles to goal attainment and progress toward a goal as well as retreat from a threat at that moment (Berkowitz and Harmon-Jones 2004). In this sense, the use of both wait acceptability and anxiety, with corresponding emphasis on transgression and time loss respectively, reflect the divergent motivational directions (i.e., appetitive vs. aversive) to view waits.

Moderator 3: Wait With vs. Without Regret

To reconcile the two sources of anger (wait acceptability vs. anxiety), we propose regret i.e., 'with' vs. 'without' regret in the wait, as a potential moderator. As noted earlier, the service-attribute model focuses on the service provider's transgression of an implicit promise of prompt delivery (i.e., an appetitive view), whereas the service-cost model centers on the time loss associated with wait (i.e., an aversive view). To capture this difference, we consider regret in wait based on whether customers have had an opportunity to avoid the wait beforehand. Regret is a comparison-based emotion of self-blame, experienced when people realize or imagine that their

present situation would have been better off had they decided differently in the past (Zeelenberg and Pieters 2007). Encountering a wait is a negative outcome and customers might be regretful about their inaction when opportunities to avoid the wait were available. As such, customers who had a chance to avoid the wait beforehand could be regretful about their past inaction and, therefore, more likely to activate an aversive view of the wait. Therefore, regret as a comparison-based emotion of self-blame tends to exacerbate the link between anxiety and anger for customers in the service-cost component of the integrated model.

In addition to the motivational view of wait, regret threatens peoples' self-image with the potential to question the wisdom of their original decision-making and even change responses to unpleasant events (Larrick 1993; Zeelenberg and Pieters 2007). To cope with this self-esteem threat, individuals utilize three approaches: compensating, breaking, and resisting (vanDellen et al. 2011). Specifically, compensating is to seek an immediate increase in self-esteem by minimizing the significance of the negative information or refocusing the attention to other information for self-evaluation; breaking is to accept the negative information by breaking the self-expectation; and resisting is to defend the negative information by actively restoring state self-esteem or passively dismissing the negative self-related information. Given that such a self-esteem threat occurs in cognition domain, people are unlikely to use the breaking approach as suggested by meta-analytic results (see vanDellen et al. 2011). Therefore, to cope with the threat of self-esteem arising from regret, customers might attempt to blame the service provider (i.e., compensating) and/or to ignore the wait in their assessment of service (i.e., resisting) (Zeelenberg and Pieters 2007).

To blame the service provider for the wait, customers must exaggerate the severity of the service provider's violation by inflating the potential value of lost time. Unlike money, the opportunity cost of time is ambiguous because time cannot be inventoried or replaced nor be

aggregated easily (Okada and Hoch 2004; Soman 2001), and thus individuals are able to assign a greater value of time as needed, for instance, to justify their hedonic consumptions (Okada 2005). Moreover, by its definition, regret reflects the involvement of imagined or expected outcome of the alternative, allowing the individual to assign an additional imagined time loss. For example, customers in a multiple-line system perceive their wait time longer than those in a single-line system, as customers in a multiple-line system tend to believe that the other lines move faster. In this sense, time loss, as well as its proxy subjective time, evokes more customer anger in waits with regret as an attempt to attribute the prior poor decision externally to the service provider, thus protecting the threatened self-esteem. Alternatively, customers can choose to passively dismiss and ignore the wait in their assessment of wait acceptability to defend their self-esteem. As a result, the memory of the wait is intentionally retrieved to a lesser extent, and thus the impact of wait acceptability on anger is attenuated. Thus we posit:

H3a: Wait with regret (vs. no regret) strengthens the relationship between anxiety and anger in the service-cost component of the integrated model.

H3b: Wait with regret (vs. no regret) strengthens the relationship between subjective time and anger in the service-cost component of the integrated model.

H3c: Wait with regret (vs. no regret) weakens the relationship between wait acceptability and anger in the service-attribute component of the integrated model.

Research Question 3: Service Satisfaction – Wait Acceptability vs. Anger

The two models (i.e., service-attribute and service-cost models) share some theoretical similarities related to the formation of service satisfaction in customer waits. Both models consider the mood congruency theory (Forgas 1995; Gardner 1985; Mayer et al. 1992) for the impact on service satisfaction. Mood congruency refers to a match in valence between a person's mood and thoughts, and mood-congruent thoughts are shown more applicable or likely than comparable non-mood-congruent thoughts (Mayer et al. 1992). In this sense, when customers evaluate experienced

service, their moods could bias the evaluation toward mood-congruent direction. Thus, customers' anger negatively impacts customers' satisfaction about the service (Pruyn and Smidts 1998; Taylor 1994). In this sense, both models support emotion-modification strategies by way of environmental aspects, such as playing ambient music and improving the layout of the waiting area (Baker and Cameron 1996; Cameron et al. 2003).

However, the two models emphasize divergent mechanisms in the formation of service satisfaction. Specifically, the mood-congruency model suggests a direct route wherein mood states associate with overt evaluation, and an indirect route wherein mood congruent memory is more accessible (Forgas 1995; Gardner 1985). In the context of service waits, these two mechanisms are represented by distinct antecedents in the formation of service satisfaction: association of emotion is reflected by the invoking of anger in the wait, while memory retrieval is activated by the use of wait acceptability. As such, the service-attribute model emphasizes the memory retrieval approach because its focal construct is wait acceptability, and the service-cost model focuses on emotional association since it focuses on anger. In other words, the mood-congruency bias functions indirectly by making mood-congruent memory more accessible in the service-attribute model, but directly via the association of mood states and the event in the service-cost model.

Moderator 4: Important vs. Unimportant Service

To reconcile the two sources of service satisfaction (wait acceptability vs. anger), we propose waiting for 'important' vs. 'unimportant' service as a potential moderator. The importance of the service reflects the intensity of customers' motivations concerning the service, stemming from the desirability of consumers' consumption goals (Sheth, Newman, and Gross 1991; Tam 2011). Service importance captures the use of different approaches in the sense that the difficulty

to retrieve wait-acceptability from memory varies with the importance of the service. Specifically, memory recall is a function of the depth of mental processing of the stimuli: deeper levels of analysis produce more elaborate, longer lasting, and stronger memory traces (Craik and Lockhart 1972). Similarly, Tam (2011) argues that customers under high importance purchase condition are more motivated to use information stored in the memory, while those under low importance condition are more likely to use heuristics. A wait in service is an obstacle blocking the satisfaction of customers' need, and thus its significance depends on the importance of customers' need or the service. In this sense, a wait for an important service draws more customers' attention, and thus customers' memories about the wait (i.e., wait acceptability) would be more easily retrieved when the service is evaluated.

In addition, important service also inhibits customers' use of emotion association in their evaluations. Specifically, emotion association is the approach where customers directly use their affect rather than their retrieved memories as information in their judgments, and such a heuristic processing approach is mostly utilized when individuals attempt to simplify their judgments or evaluations (Forgas 1995). In this sense, the importance of the service reduces customers' tendency to simplify their evaluation process, and hence emotion association is less used in the evaluation, making anger less influential on service satisfaction. Following a similar logic, Tam (2011) argued and showed that customers in low purchase importance contexts use more immediate reactions than information processing to determine customer satisfaction. Thus we posit:

H4a: Wait related to important service (vs. unimportant service) strengthens the relationship between wait acceptability and service satisfaction in the service-attribute component of the integrated model.

H4b: Wait related to important service (vs. unimportant service) weakens the relationships between anger and service satisfaction in the service-cost component of the integrated model.

Methodology

Data Collection

In this meta-analysis, we first searched for articles in customer wait and satisfaction, identified relevant studies from relevant articles, and finally collected data reported in the identified studies and categorized them based on the proposed moderators. We primarily relied on citation search in identifying relevant articles because the numerous articles yielded from the keyword search are beyond our capability to handle. For example, searching for “waiting service” yields roughly 51,000 results in the ABI/INFORM Collection database and 11,500 results in the Business Source Complete database. Despite a great proportion of non-relevant articles falling into operation management discipline³, no proper keywords can effectively narrow down the result without potentially losing relevant studies. In this case, citation search is a better alternative approach: it identifies seed articles and traces articles that cite these seed articles. Citation search can provide more comprehensive results about a topic when seed articles can be identified properly.

We considered the journal where the article was published and the number of citations of the article in our selection of seed articles. Specifically, we included all articles relevant to service waits published in A-level marketing journals in the Academic Journal Guide (AJG) List (i.e., *International Journal of Research in Marketing*, *Journal of Consumer Psychology*, *Journal of Consumer Research*, *Journal of the Academy of Marketing Sciences*, *Journal of Marketing*, *Journal of Marketing Research*, *Journal of Retailing*, *Journal of Service Research*, and *Marketing Science*). In addition, we manually included three well-cited pioneering articles (Dube-Rioux,

³ Operation management studies focus primarily on the management and the optimization of waiting time using queueing theory and stochastic processes, which is beyond the scope of our analysis. Also, their empirical studies are mostly based on simulations, which did not fit our data collection criteria.

Schmitt, and Leclerc 1989; Katz, Larson, and Larson 1991; Maister 1985). We identified 23 seed articles in total. Please refer to Appendix for a summary of focal constructs and theoretical arguments in the seed articles.

Inclusion Criteria

We skimmed through the titles and abstracts of all articles citing each one of these seed articles on Google Scholar and selected relevant articles to build a database. We did not use any publication database but Google Scholar to maximize the number of relevant articles, as Google Scholar also archives student theses and dissertations. In sum, this step yielded 358 relevant articles for further examination.

Next, we went through these articles and attempted to code the target variables. The inclusion criteria were: 1) that the study was empirical in nature with human subjects; 2) that the study investigated customers' response to a service wait; and 3) that the results reported the correlation coefficient or other effect sizes that could be converted to correlation coefficient (e.g., d , t -value, and covariance matrix). The correlation coefficient was used as effect size metric in this study because of its popularity (Grewal, Puccinelli, and Monroe 2018) and accuracy (Hedges and Olkin 2014; Hunter and Schmidt 2004). Following the first criterion, we excluded conceptual articles, review articles, and articles with only qualitative studies or simulation studies. Following the second criterion, we excluded studies that primarily focused on: wait time management (e.g., the range of the acceptable wait time and the optimal resource allocation); components of service quality or satisfaction, attribution or fairness in the wait (e.g., conditions to attribute the wait to service provider and the impact of priority program); impact of customers' characteristics on their responses to wait (e.g., cultural impact); selection of appropriate wait strategies (e.g., wait information, filling activities, design of the wait environment, etc.); and wait for product deliveries,

and service failure and recovery. Before we used the third selection criterion to eliminate an article, we attempted to contact the author by email to inquire for supplemental data. In sum, these steps identified 87 distinct studies from 69 articles for coding and analyzing. The final list of the studies is available upon request.

Data Coding

The coding of these identified studies includes two steps: (a) recording the reported or converted correlation coefficient from each study and (b) classifying studies based on the proposed moderators. Because the definitions of constructs in this study are clear and distinct, a coder independently completed the recording. Specifically, variables describing customers' wait length perception were coded as subjective time; variables describing the discrepancy between time perception and a referencing standard were coded as disconfirmation; variables depicting emotions evoked due to uncertainties in waits (e.g., unsettled, uneasy, anxious, uncertain, stressful, etc.) were coded as anxiety; variables depicting emotions evoked by violations, transgressions, or losses due to the wait (e.g., angry, irritated, annoyed, frustrated, unhappy, etc.) were coded as angry; variables describing the evaluation of the wait experience, including judgments about whether the wait is long or short, were coded as wait acceptability; and variables describing the evaluation of the service in general, including the evaluation of the service quality, were coded as service satisfaction. In cases where multiple measures were available (e.g., estimated wait time and perceived wait time), we transformed these correlations into Fisher's Z-value, averaged them with the weight of their sample size, and then retransformed the average Z-value back to correlation (Lenhard and Lenhard 2014). Eventually, we combined 215 correlations from the 87 identified studies resulting in a sample of $N=20,507$ with which to calculate the pairwise effect size estimates.

The classifying part was completed by two coders separately. The same set of instructions provided to two independent coders delineated the criterion by which to classify studies on each moderator. Specifically, studies where any participants' responses to the wait were recorded during the wait process (e.g., participants reported their real-time feelings about the wait) were coded as "studies during the wait", otherwise as "studies after the wait"; studies where participants had a confident wait time estimation were coded as "known waits", otherwise as "unknown waits"; studies where participants could have avoided the wait (e.g., by making a reservation, buying a priority pass, etc.) were coded as "waits with regrets", otherwise as "waits without regrets"; studies where getting the service was important to the participant were coded (e.g., waiting in the emergency room) as "waits for important service", otherwise as "waits for unimportant service". The coder would leave it empty when the study manipulated the proposed moderator (e.g., providing the estimated wait time to a subset of participants). When insufficient information was provided in the study, the coders judged based on their best guess in common cases (e.g., the participants could have avoided the wait in a restaurant with a reservation but could not in a clinic visit); however, the coder could leave it empty if the case largely depended on the participants (e.g., whether the participants had a clear estimated wait time in a barbershop). The classification of studies was consistent across the two independent coders (Percentage agreement: 95.4%; and Cohen's kappa: .905).

Meta-Analysis and Results

Bivariate Association

We first conducted univariate analysis of all pair-wise correlations of all constructs. We report the sample-weighted reliability-adjusted average correlation coefficient (\bar{r}) and its 95%

confidence intervals (95% CIs) for each pair of constructs. Specifically, we divided the correlation coefficient by the product of the square root of reported reliabilities which is replaced by the mean reliability when not reported. We transformed correlations into Fisher's z scores before applying the sample weights and reconverted them back to correlation coefficients. File Drawer N is reported which estimates potential publication bias (Rosenthal 1979), wherein we calculated the number of unknown studies with null results that would bring the effect to the non-significance level (i.e., the magnitude of the correlation drops below 0.05). Also, Q-statistics of homogeneity is reported as a quick indicator of the potential existence of moderators in the relationship. Table 2 summarizes these results.

-----Insert Table 2 Here-----

The results of this univariate analysis confirm the significant roles of wait-time constructs on wait outcomes as well as the mediating roles of wait process constructs, with correlation magnitudes ranging from .137 to .838. Most of these findings are robust with regard to the number of null studies needed to render the observed effects insignificant (mean file-drawer N is 169) with two exceptions: the linkage between disconfirmation and anger and linkage between anxiety and wait acceptability (N = 21 and 22 respectively). In the Q-statistic test for homogeneity, with two exceptions (i.e., Subjective Time → Anxiety and Anxiety → Wait Acceptability), all tests for homogeneity were significant.

Two-Stage SEM

With the help of Two-Stage Structural Equations Modeling (TSSEM; Cheung and Chan 2005), we further validated the paths of the proposed model using summarized data. TSSEM technique is a multivariate approach of meta-analytic structural equation modeling containing two

main stages: 1) to derive a pooled correlation matrix using multi-group structural equation modeling and 2) to fit the pooled correlation matrix into the proposed structural model using weighted least square estimation. This approach produces unbiased parameter estimates and outperforms other meta-analytic structural equation modeling methods such as the generalized least squares approach (Cheung and Chan 2005). The current TSSEM analysis was conducted in R platform using the random effects model (Cheung 2014). Random effects model was selected to handle missing data and heterogeneity variance among studies (Cheung 2015). Also, the weighted means of the correlation matrices was used to calculate the asymptotic covariance matrix to better deal with missing values in the raw data (Cheung and Hafdahl 2016). The heterogeneity indices of most correlations are substantial, implying that these links are heterogeneous among studies and supporting the use of the random effect model instead of the fixed effect model. Details of the pooled correlation matrix are provided in Table 3.

-----Insert Table 3 Here-----

Model Fit Results

The model fit results suggest that the proposed integrated model fits the data well ($\chi^2/df = 6.314$, RMSEA = .0161, CFI = .9735) (see Table 5). To illustrate the superiority of the proposed model, we examined the service-attribute and service-cost model separately. Specifically, we controlled for the impact of anxiety on anger to reflect the service-attribute model, and we made wait acceptability anteceded by disconfirmation⁴ and controlled its impacts on both anger and

⁴ Theoretically, disconfirmation only has a direct impact on wait acceptability. Thus, we kept disconfirmation as the antecedent of wait acceptability when controlling for wait acceptability. We also examined a model which controls for the impact of disconfirmation on anger and service satisfaction and the impact of wait acceptability on anger and service satisfaction, but the model fit became worse ($\chi^2/df = 70.26$, RMSEA = .0581, CFI = .5965), thus validating our current approach.

service satisfaction to reflect the service-cost model. Both service-attribute and service-cost models fit the data worse than the proposed integrated model ($\chi^2/df = 15.56$ and 41.17 , RMSEA = $.0266$ and $.0443$, CFI = $.9031$ and $.7326$, respectively). The model fit indices, as well as the chi-square difference tests between models, indicate that proposed integrated model provides a greater parsimony than either model ignoring either perspective (BIC = -21.69 vs. 7.624 or 53.14 ; $\Delta\chi^2 = 29.31$ or 84.76 , both $\Delta df = 1$ and both $p < .001$). Table 4 summarizes the results.

-----Insert Table 4 Here-----

The path estimates validate all links in the integrated model as expected except for the link between subjective time and anger ($\beta = .04$ [$-.09, .16$], 95% CI). This non-significance indicates that the impact of subjective time on anger is fully mediated when both anxiety and wait acceptability are together. As such, the two perspectives are complementary. Moreover, the bootstrapping estimations of indirect effects reveal the equal mediating effect of anxiety and wait acceptability (indirect effect: $.078$ [$.041, .122$] vs. $.086$ [$.049, .160$]), and thus losses and transgressions are equally influential in evoking customers' anger, addressing the second research question in our study. Further, subjective time and disconfirmation have similar impact on anger (total indirect impact: $.203$ [$.087, .301$] vs. $.186$, [$.083, .269$]). Notably, the impact of subjective time is split transmitting through both anxiety and wait acceptability while disconfirmation's influence is purely via wait acceptability. On the other hand, service satisfaction is primarily influenced by wait acceptability relative to anger ($\beta = .355$ [$.278, .436$] vs. $.170$ [$.069, .253$]).

Mediation Tests

We also estimated the direct and indirect effects to confirm the mediation role of anxiety, wait acceptability, and anger in each of the individual models and the integrated model. The results

confirm the partial mediation role of anxiety in the service cost model (direct effect: .344 [.266, .420]; indirect effect: .069 [.038, .110]) and the full mediation role of wait acceptability in the service attribute model (total direct effect: .108 [-.027, .226]; indirect effect: .085 [.053, .164]). More importantly, anxiety and wait acceptability work together to fully mediate the impact of subjective time on anger in the integrated model (direct effect: .040 [-.093, .161]; indirect effect: .078 [.041, .122] for anxiety and .086 [.031, .160] for wait acceptability). Also, the results reveal that anger has a partial mediation role in the service attribute model (direct effect: .368 [.288, .459]; indirect effect: .072 [.019, .081]), a full mediation role in the cost model (direct effect: -.104 [-.267, .069]; indirect effect: -.077 [-.143, -.038]), and a partial mediation role in the integrated model (direct effect: .355 [.278, .437]; indirect effect: .078 [.038, .117]).

Moderator Analysis

To explore the impact of the proposed moderators, we used the subgroup analysis suggested by Jak and Cheung (2018). The idea of subgroup analysis is to conduct the TSSEM on moderator-split two subgroups and test the heterogeneity in the model parameter estimates between subgroups. This heterogeneity test examines the significance of chi square difference between the unconstrained model and a constrained model.

In our analyses, we compared the unconstrained model to three types of constrained models to examine the proposed moderators' impacts at (a) the model level, (b) the research question level, and (c) the construct level. Specifically, the model level constrained model assumes all parameter estimates of the model are equal across two subgroups; at the research question level, each of three constrained models (for three research questions) assumes all parameter estimates relevant to one specific research question are equal across two subgroups; and each of six construct level

constrained models assumes all parameter estimates relevant to one specific construct are equal across two subgroups. In this sense, we first examine whether a moderator has a significant impact on the model, then inspect whether the moderator has a notable influence on each research question, and finally scrutinize its moderating effects on each individual construct. Results are reported in Table 5.

-----Insert Table 5 Here-----

The model level comparisons indicate that all four proposed moderators have significant impacts on the proposed model ($\Delta\chi^2 = 30.53, 43.45, 34.52, \text{ and } 24.65$, all $\Delta df = 9$, and all $p < 0.01$). Specifically, the research question level examination suggests that the diagnostic measure (Research Question 1) varies between studies conducted during and after the wait and between known and unknown waits ($\Delta\chi^2 = 11.67 \text{ and } 11.51$, both $\Delta df = 3$, and both $p < 0.01$); that the source of anger (Research Question 2) is impacted by all proposed moderators ($\Delta\chi^2 = 12.80, 25.66, 13.52, \text{ and } 8.92$ respectively, all $\Delta df = 4$, and all $p < 0.05$), and that the source of service satisfaction (Research Question 3) differs between known and unknown waits, between waits with and without regrets, and between waits in important and unimportant service ($\Delta\chi^2 = 11.03, 6.48, \text{ and } 6.57$ respectively, all $\Delta df = 2$, and all $p < 0.05$).

More specifically, construct level analyses reveal impacts brought by the proposed moderators. First, the impact of subjective time on anxiety ($\beta = .187 \text{ and } .214$) is significant both ‘during’ and ‘after’ the wait in the service-cost component of the integrated model. Further, studies conducted ‘during’ the wait vs. ‘after’ the wait report different patterns for wait acceptability ($\Delta\chi^2 = 10.95$, $\Delta df = 2$, and $p < 0.01$): studies conducted ‘during’ the wait conclude that only disconfirmation has the impact on wait acceptability ($\beta = -.910$), while those studies conducted ‘after’ the wait suggest that both subjective time and disconfirmation have significant influences

on wait acceptability ($\beta = -.251$ and $-.352$). These results are aligned with our hypotheses about the roles of subjective time and disconfirmation (H1a/H1b/H1c supported), reconciling the diagnosticity of the two measures. In addition, the two groups of studies ('during' vs. 'after' the wait) also report disagreement on the impact of wait acceptability on anger ($\Delta\chi^2 = 7.90$, $\Delta df = 1$, and $p < 0.01$): studies conducted 'during' the wait suggest a smaller impact than those conducted 'after' the wait ($\beta = -.306$ vs. $-.543$). This result is also consistent with the hypothesized role of subjective time: the non-significant impact implies the influence of subjective time on wait acceptability is missing 'during' the wait, consistent with our argument that subjective time is ex post facto.

Second, customers in 'known' and 'unknown' waits have different approaches in the formation of wait acceptability ($\Delta\chi^2 = 11.09$, $\Delta df = 2$, and $p < 0.01$): Customers in 'known' waits rely on disconfirmation solely to determine the wait acceptability ($\beta = -.589$), while those in 'unknown' waits only use subjective time ($\beta = -.546$). This contrast confirms our hypotheses about the use of "could be" and "should be" expectation (H2a/H2b supported). In addition, customers in different waits get angry for different reasons: those in 'known' waits (vs. 'unknown' waits) are less angry because of transgression in the wait as a result of violation of implicit promise ($\beta = -.388$ vs. $-.930$, $\Delta\chi^2 = 15.83$, $\Delta df = 1$, and $p < 0.001$) but more because of associated time losses (total effect: $.168$ [$.041$, $.287$] vs. $-.258$ [$-.506$, $-.033$], $\Delta\chi^2 = 9.65$, $\Delta df = 2$, and $p < 0.05$). Also, the two groups of customers use different approaches in the formation of service satisfaction: those in 'unknown' waits do not use emotional association in service evaluation, significantly less than those in 'known' waits ($\beta = .010$ vs. $-.194$, $\Delta\chi^2 = 5.129$, $\Delta df = 1$, and $p < 0.05$).

Third, customers 'with regret' and those 'without regret' weigh time loss differently ($\Delta\chi^2 = 10.75$, $\Delta df = 2$, and $p < 0.01$): customers with regret get more anger from the time loss in the

wait than those without regret (total effect: .243 [.111, .370] vs. .091 [-.065, .231]), and notably, both the direct impact of subjective time and indirect impact of anxiety are enhanced ($\beta = .169$ and .477 vs. .038 and .237). Moreover, customers ‘with regret’, compared to those ‘without regret’, use wait acceptability less to influence service satisfaction ($\beta = .265$ vs. .457, $\Delta\chi^2 = 6.29$, $\Delta df = 1$, and $p < 0.01$). These results are congruent with our proposed hypotheses about the distinct motivational systems (H3a/H3b supported, however H3c not supported), confirming that regret exerts extra weight on aversive motivational system and that customers use the compensating approach to cope with self-esteem threats due to regret.

Fourth, the importance of the service leads to different levels of use of memory retrieval in the service assessment ($\Delta\chi^2 = 6.28$, $\Delta df = 1$, and $p < 0.01$): wait acceptability (i.e., memory retrieval) has a more significant role when service is important ($\beta = .646$ vs. .262). Also, marginal significant difference is found for the anger-satisfaction link between important and unimportant service contexts ($\Delta\chi^2 = 3.52$, $\Delta df = 1$, and $p < 0.1$), and the results show customers’ tendency to use less emotion association in their evaluation when service is important ($\beta = .214$ vs. -.227). These results are compatible with our hypotheses about divergent utilization of emotion association and memory retrieval (H4a supported, H4b marginally supported), confirming that customers use two approaches to evaluate the service.

General Discussion

In this study, we provide a conceptual framework of customer wait time that integrates and reconciles ‘dual-perspectives’ built on expectancy-disconfirmation and psychological cost traditions. Specifically, we argued that the two models, i.e., service-attribute and service-cost model share the same theoretical bases for the formation of time perception (i.e., the cognitive

timer model), anger (i.e., the appraisal-attribution theory), and service satisfaction (i.e., the mood-congruency model); however, the two models also have distinct motivations and mechanisms (i.e., prospective vs. retrospective time orientation, “should be” vs. “could be” expectation, loss vs. transgression, and emotion association vs. memory retrieval). Recognizing that theory integration is a challenging task as conflicting assumptions need to be reconciled and integrated in establishing a common foundation, we argued for the role of four specific moderators in reconciling the differing theoretical perspectives. What follows next is a discussion of several theoretical insights that emerge with respect to the three research questions.

Theoretical Insights

Our meta-analytic findings validate the robustness of the integrated ‘dual-perspective’ model both in terms of model fit and model parsimony. It is interesting to note that the partial mediating role of anxiety (in the service-cost model) changes to full mediation in the integrated ‘dual perspectives’ model confirming that wait acceptability from the service-attribute model absorbs the residual direct effect of subjective time on anger. This ‘full mediation’ effect (Zhao, Lynch, and Chen 2010) implies that the service-attribute and service-cost models are complementary in service waits, i.e., customers’ anger is provoked from the threat of time loss (i.e., anxiety) as well as from judgment of unacceptable wait (i.e., wait acceptability).

In relation to the first research question, i.e., relative diagnosticity of subjective time vs. disconfirmation, we examined two moderators: the timing of the study conducted and customers’ confidence in wait expectation. The contrast between studies conducted ‘during the wait’ and ‘after the wait’ confirms the two divergent time orientations in response to the wait. Subjective time can be considered prospectively as the passage of time ‘during the wait’, i.e., flow variable, having no

influence on wait acceptability; but retrospectively as the perceived length of the wait ‘after the wait’, i.e., stock variable, impacting wait acceptability (Zhou and Soman 2003). Put differently, the role of subjective time changes from a key driver of psychological cost ‘during’ the wait to a critical determinant of wait acceptability ‘after’ the wait in conjunction with disconfirmation. In contrast, the impact of disconfirmation on wait acceptability, which subsumes⁵ subjective time as flow variable, is stronger during the wait (vs. after the wait) and its effect follows a discrete decreasing function on wait acceptability (Bolton 1998). The validity of subjective time in wait is relevant, particularly, when dissonance reduction strategy adopted by an individual after a disconfirming experience relates to modifying pre-experience expectation, rather than subjective time, as the former is easier to adjust than the latter (Tse and Wilton 1988).

With regard to the second moderator, the notion of customers’ confidence in wait expectation challenges the legitimacy of providing wait information to establish a proper expectation about the wait. In the service-attribute model, the customer uses the “could be” wait expectation in known waits, i.e., point estimates that are context-dependent and relies more on disconfirmation in evaluating wait acceptability. Consistent with earlier findings in the customer satisfaction literature (Szymanski and Henard 2001), disconfirmation plays a major role in the cognitive evaluation of service waits. Customers’ wait expectation reduces the uncertainty and improves customer satisfaction, because wait information distracts customers’ attention away from the passage of time and provides cognitive reappraisal to cope with the wait (Grewal et al. 2003;

⁵ Following satisfaction literature, one concern has been the potential confounding effect of performance since disconfirmation subsumes performance in the form of ‘expectation minus performance’. However, several empirical studies validated by meta-analysis (Szymanski and Henard 2001) have shown that performance has a significant impact on customer satisfaction beyond disconfirmation. In our meta-analytic study we demonstrate that subjective time is a distinct construct separate from disconfirmation and it significantly influences wait acceptability over and above disconfirmation.

Hui and Tse 1996; Kumar 2005; Kumar, Kalwani, and Dada 1997). In our meta-analytic study, we found that customers rely on different measures, disconfirmation vs. subjective time in ‘known’ and ‘unknown’ waits respectively; and, therefore, providing wait information to customers does not necessarily eliminate the negative impacts of wait – waits still become less acceptable with increase in disconfirmation. The benefit of providing wait information is limited to specific contexts where disconfirmation is controllable (or within customers’ zone of tolerance), challenging the robustness of this strategy.

In relation to the second research question, i.e., the primary source of anger in the wait, we examined waits with vs. without regret, and found this moderator critical in determining the primary source of anger, validating our reconciliation of varied emphases in anger elicitation (i.e., transgression vs. loss). Particularly, our results illustrate how customers use the compensating approach to protect their self-esteem when it is being threatened, and this finding offers an additional viewpoint, customers’ motivation, in the discussion of customers’ responses to waits. In our findings, customers with regret tend to elicit more anger as a result of subjective time and anxiety in the service-cost model, pointing to their effort in inflating the value of lost time and in exaggerating the severity of service providers’ violation, thereby compensating for their prior poor decision. More importantly, our finding introduces the impact of customers’ motivational focus in the wait, inspiring the development of innovative wait management strategies. Arguments for the negative impacts of service waits, such as “wait is an obstacle to need satisfaction”, “wait is a violation of implicit service promise”, and “wait is an extra cost to service” are not new in the literature, but this study is the first to distinguish the multiplicity of arguments by their motivational direction (Berkowitz and Harmon-Jones 2004): the first two are consistent with an appetitive view, while the last one is consistent with an aversive view. Moreover, motivational directions determine

the dominant model and the focal aspect of the wait: appetitive motivations are linked with the service-attribute model while aversive motivations are with the service-cost model. One possible explanation for unsupported H3c is that the customers tend to blame the service provider when encountering an unacceptable wait, because such an evaluation of “unacceptable” wait involves the attribution to the service provider by nature. As a result, the differential tendency to blame the service provider is not valid in this link.

Although not hypothesized, it is noteworthy that customers in ‘known’ waits (vs. ‘unknown’ waits) are less angry because of transgression in the wait as a result of violation of implicit promise but more because of associated time losses. Further, those in ‘unknown’ waits do not use emotion association in service evaluation, significantly less than those in ‘known’ waits. These results align with our arguments about the source of anger and the source of service satisfaction. Specifically, a low confidence in the “could be” expectation means more difficulty in specifying an aversive goal (i.e., what to avoid), which is fundamental to the perception of marginal goal progress and in turn the motivation to achieve the goal (Wallace and Etkin 2018); and, therefore, the anger of customers in unknown wait is more about transgressions and less about losses. Also, the absence of the “could be” expectation implies more difficulty in linking anger to the service due to the lack of contextual information to identify the correct source of the anger (i.e., why angry), which is essential to the emotion association (Forgas 1995), and thus service satisfaction is less related to customers’ anger when they are in unknown wait.

In relation to the third research question, i.e., the key determinants of service satisfaction, we examined the moderating influence of ‘importance’ of the service on the formation of service satisfaction, attesting our reconciliation of two information processing mechanisms (i.e., memory retrieval vs. emotion association). Particularly, we found that customers in important services use

more memory retrieval but less emotion association, as a result of more information processing involved. In this sense, this finding reveals potential divergent outcomes of the same wait simply due to differences in customers' information processing styles. As such, we advocate further exploration on the impact of customers' cognitive activities in the wait, despite customers seeming to be passive receivers in wait scenarios with few decisions to make. Such an exploration can potentially explain individual differences in the same wait context and direct resources to new wait strategies. For example, Hui and Tse (1996) based on the cognitive controls that customers might practice to cope with the wait suggested the different use of wait duration information and queue information. Similarly, our findings about the use of information processing offer a theoretical basis for new strategies as well. It is well documented that construal level alters the individual's information processing strategy (Lee, Keller, and Sternthal 2010), and offers promise to study customer cognitive representations of waits and their impact on service satisfaction.

Managerial Implications

Our study offers several useful managerial implications. First, our integrated 'dual-perspective' model suggests customer anger is evoked from both wait unacceptability and anxiety due to time wasted, fueled in equal measure by subjective time and disconfirmation. Hence, there is a need to balance both aspects. Service managers need to focus not just on reducing the wait time or its subjective perception, but also on providing better 'customer experience' during waits (Homburg, Jozić, and Kuehnl 2017; Lemon and Verhoef 2016). For example, the use of self-serving technologies in the retailing industry effectively reduces the cost aspect of the wait giving managers the impression that the wait issue has been addressed. However, a recent study on customers' satisfaction with self-serving technologies, and in turn with the store, underscored the

importance of technology experience as a driver of these satisfactions (Djelassi, Diallo, and Zielke 2018). Particularly, compared to using self-checkout technology, using self-scanning technology involving more interactions enhances customers' emotional experiences towards the wait and improves customers' satisfactions with the technology and the store. Hence managers should strive for both excellent wait experience and minimal wait time.

In the service-attribute model customers' initial and subsequent wait expectations are point estimates of the 'most likely' wait times whereas, the service-cost model postulates that customers hold a probability distribution of the possible wait times. Such difference in the assumption of wait expectation leads to a distinction in the meaning of new wait-related information to customers, resulting in the divergent use of subjective time and disconfirmation. From a managerial perspective, strategies to reduce disconfirmation traditionally involve providing explicit information (i.e., expected wait time) about the wait time because of its positive impact (Durrande-Moreau and Usunier 1999; Hui and Tse 1996; Kumar, Kalwani, and Dada 1997). These strategies are even more important in 'known' waits wherein customers hold "could be" expectation with high confidence, evoking conscious accounting for the passage of time. In the event that waits are outside their control, managers are better off not communicating and setting up customer wait expectations. In such a case, it is better to inform customers the wait status instead of the explicit wait time remaining as such wait time guarantees can backfire (Hui and Tse 1996; Kumar, Kalwani, and Dada 1997). Despite the wait status and wait time information provided, customers are still likely to complain about their waits as they switch their focus from wait as service-cost to wait as service-attribute, expecting better 'customer experience' during waits.

Strategies to reduce subjective wait time in 'unknown' waits often involve distracting customers' attention away from the passage of time, because the accounting of wait time requires

attentional resources (Hornik and Zakay 1996; Zakay 1989). Past studies have identified three contextual antecedents of subjective time perception: wait environment (Baker and Cameron 1996; Baker et al. 2002), filled time (Maister 1985; Pruyn and Smidts 1998), and wait information (Hui and Tse 1996). These potentially serve as ‘attention distractors’ that change the allocation of attentional resources and slows the cognitive timer, thus leading to underestimation of subjective time. In addition, elements in the wait environment can play the role of ‘emotion influencers,’ influencing customers’ emotions in mood-congruent direction (Gardner 1985; Mayer et al. 1992), and also serve as ‘quality signal’ cues (Brocato, Voorhees, and Baker 2012; Giebelhausen, Robinson, and Cronin 2011; Hornik and Zakay 1996) implying better service value and increased willingness to wait; both mechanisms influencing subjective time perception in both service-attribute and service-cost components of the integrated model.

With advancement in technology, customers are offered more flexibility and choice to avoid waits, such as making online or phone (mobile) reservation or joining a virtual line in advance. These technologies are believed to resolve the wait issue to some extent (and rightfully so), but our study reveals that it could also lead to negative outcomes for firms. Specifically, we find that providing technology-mediated alternatives to waiting can result in a threat to self-esteem when customers forego such options and as a result experience regret. As a coping strategy, such customers are more likely to get angrier about the time loss due to the wait. As such, managers should be cautious about this negative outcome when adopting these new technologies. For example, theme parks often have priority lines where customers can pay extra money to “skip the main line”, but the priority line could lead to a perception of injustice among customers in the mainline and, in turn, result in customer dissatisfaction, negative word of mouth, and reduction in purchase intention. In this logic, the perception of injustice and customer dissatisfaction could also

occur among waiting customers when observing other technology-savvy customers taking advantage of advanced technologies to avoid the line (White, Breazeale, and Collier 2012).

Finally, our meta-analytic finding related to waiting for ‘important’ vs. ‘unimportant’ service offers opportunities and challenges for managers. On the one hand, our results suggest that customers care less about the cost aspect of the wait and thus they do not get angry when they are waiting for an important service. On the other hand, our results also show that unacceptable waits lead to greater anger and lesser service satisfaction when the service is important. This contrast reflects the paradox of the wait time issue that has long existed, for example, in the health care industry where wait-time is a critical determinant of health-care provider satisfaction, despite customers showing higher willingness to wait. Our findings suggest that managers could reduce resources invested in wait time optimization and instead increase customer confidence in their “could-be” expectation of the wait time.

Limitations and Future Research

Future research opportunities remain despite new insights generated in the current meta-analytic study. For example, we were limited in our ability to consider the interaction effect between the two wait perception models; rather, we only examined their main effects. We encourage future studies to investigate the interaction phenomenon. Also, our meta-analytic study did not capture the dynamic effects in service wait issues. Specifically, it remains unclear how the impact of subjective time and disconfirmation changes over time, despite our finding that subjective time has no impact on wait acceptability during the wait. Future research can also explore recency and primacy effects in temporal time judgments in the wait. Finally, in our framework we did not consider the role of goal conflict and how it affects subjective time perception. A recent study showed that subjective perceptions of goal conflict affect how much

time customers feel they have, and that stress and anxiety drive this effect (Etkin, Evangelidis, and Aaker 2015). People experience enhanced stress and anxiety when they are time constrained and the two are often experienced together (Payne, Bettman, and Luce 1996). Further, when customers experience heightened stress and anxiety, they view their time as more limited. While, goal conflict often arises because goals compete for time, less obvious is the case when goals do not compete for time. Future studies can examine how goal conflicts while waiting can influence subjective time perception.

Limitations notwithstanding, we believe our conceptual framework and meta-analysis in this study not only reconciles several equivocal findings in the customer wait literature, but also serves a rich repository and a guidepost going forward for both service scholars and managers.

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Tables and Figures

Table 1: Similarities and Differences between Service-Attribute Model and Service-Cost Model

Similarities	Differences	
	The Expectancy Disconfirmation Model	The Psychological Cost Model
Both models use the cognitive timer model to describe the formation of subjective time, emphasizing the role of attention	Assumes a ‘most likely’ wait time Uses the discrete ‘anchoring and adjustment’ process for belief updating Focuses on the impact of disconfirmation	Assumes the prediction of a probability distribution of wait time Uses a continual disutility function for belief updating Focuses on the impact of subjective time
Both models use the attribution theory to examine anger evoked in the wait, emphasizing the external attribution of the wait	Emphasizes on transgression in the wait due to a violation of the implicit promise of a prompt service	Emphasizes on the utility loss in the wait due to time wasted
Both models use the mood congruency model to depict the impact on service satisfaction	Implies retrospective time orientation Uses memory-based processing Weights heavily the indirect memory retrieval of wait acceptability in service satisfaction	Implies prospective time orientation Uses online processing Weights heavily the direct association with anger in service satisfaction

Table 2: Pairwise Analysis

Proposed Relationship	Number of Studies	Sample Size	Weighted Adjusted \bar{r}	95 % CI		File Drawer N	Q-statistic for Homogeneity
				LB	UB		
Subjective Time → Disconfirmation	8	1353	.838	.675	1.00	237.84	450.27
Subjective Time → Anxiety	10	2734	.262	.197	.329	44.22	14.02
Subjective Time → Anger	24	5813	.412	.326	.497	192.61	203.21
Subjective Time → Wait Acceptability	38	8990	-.476	-.552	-.402	372.53	447.87
Subjective Time → Satisfaction	64	16101	-.330	-.394	-.267	383.25	745.53
Disconfirmation → Anxiety	3	312	.137	-	-	-	-
Disconfirmation → Anger	7	2643	.204	.075	.332	22.19	40.57
Disconfirmation → Wait Acceptability	5	1035	-.624	-.747	-.501	74.79	33.65
Disconfirmation → Satisfaction	15	4165	-.452	-.624	-.291	136.71	468.08
Anxiety → Anger	4	1620	.296	-	-	-	-
Anxiety → Wait Acceptability	7	893	-.197	-.348	-.050	21.14	15.86
Anxiety → Satisfaction	8	1886	-.250	-.406	-.105	33.26	54.67
Wait Acceptability → Anger	16	4929	-.641	-.777	-.512	250.98	607.18
Wait Acceptability → Satisfaction	25	7272	.452	.375	.538	228.30	1045.03
Anger → Satisfaction	26	8631	-.395	-.466	-.333	197.20	174.55

Table 3: Pooled Correlation Matrix

	SUB	DIS	ANX	ANG	APT	SAT
Subjective Time (SUB)	-	.904	.268	.837	.736	.587
Disconfirmation (DIS)	.647	-	.849	.862	.102	.847
Anxiety (ANX)	.197	.128	-	.000	.926	.870
Anger (ANG)	.313	.211	.388	-	.846	.761
Wait Acceptability (APT)	-.376	-.521	-.181	-.606	-	.741
Service Satisfaction (SAT)	-.294	-.395	-.229	-.331	.400	-

Lower Triangle is the estimated correlations. Upper Triangle is the heterogeneity indices (I^2)

Table 4: Path Estimates for Integrated Model and Alternative Models

Paths	Integrated Model	Alternative Model 1 (Service Attribute Model)	Alternative Model 2 (Service Cost Model)
Subjective Time → Anxiety	.211***	-	.178***
Subjective Time → Anger	.040	-	.345***
Subjective Time → Wait Acceptability	-.186**	-.204**	-
Disconfirmation → Wait Acceptability	-.404***	-.379***	Controlled
Anxiety → Anger	.368***	Controlled	.356***
Wait Acceptability → Anger	-.460***	-.579***	Controlled
Wait Acceptability → Service Satisfaction	.355***	.375***	Controlled
Anger → Service Satisfaction	-.170**	-.126***	-.322***
χ^2/df	6.314	15.560	41.174
RMSEA	.0161	.0266	.0443
CFI	.9735	.9031	.7326

***: $p < 0.001$; **: $p < 0.01$; *: $p < 0.05$

Table 5: Moderator Testing Using Subgroup Analysis in the Integrated Model

Research Question	Focal Model	Links Involved in the Research Question	Study		Waits		Regret		Service Importance	
			During	After	Known	Unknown	Yes	No	High	Low
Diagnostic Measure: Subjective Time versus Disconfirmation	Service-Cost Model	Subjective Time → Anxiety $\Delta\chi^2$ ($Adf = 1$)	0.187***	0.241***	0.214***	0.190**	0.155***	0.223***	0.158***	0.228***
			0.975		0.093		3.795		1.604	
	Service-Attribute Model	Subjective Time → Wait Acceptability Disconfirmation → Wait Acceptability $\Delta\chi^2$ ($Adf = 2$)	0.425	-0.251***	0.049	-0.546***	-0.144*	-0.032	-0.307*	-0.025
			-0.910**	-0.352***	-0.589***	-0.088	-0.318***	-0.530***	-0.250	-0.589***
		$\Delta\chi^2$ ($Adf = 3$)	11.672**		11.507**		6.858		5.385	
Source of Loss versus Transgression	Service-Cost Model	Subjective Time → Anger Anxiety → Anger $\Delta\chi^2$ ($Adf = 2$)	0.022	0.025	0.095	-0.344**	0.169*	0.038	-0.384***	0.118
			0.550		9.649**		10.754**		5.177	
	Service-Attribute Model	Wait Acceptability → Anger $\Delta\chi^2$ ($Adf = 1$)	-0.306***	-0.543***	-0.388***	-0.930***	-0.331***	-0.381***	-0.941***	-.459***
			7.903**		15.825***		0.162		2.542	
		$\Delta\chi^2$ ($Adf = 3$)	12.803**		25.662***		13.517***		8.917*	
Source of Satisfaction Reduction: Wait Acceptability versus Anger	Service-Attribute Model	Wait Acceptability → Service Satisfaction $\Delta\chi^2$ ($Adf = 1$)	0.349***	0.341***	0.358***	0.423***	0.265***	0.457***	0.646***	0.262***
			0.010		0.562		6.288*		6.28*	
	Service-Cost Model	Anger → Service Satisfaction $\Delta\chi^2$ ($Adf = 1$)	-0.184***	-0.166**	-0.194***	0.010	-0.272***	-0.155**	0.214	-0.227***
			0.051		5.129*		1.789		3.519	
		$\Delta\chi^2$ ($Adf = 2$)	0.193		11.028**		6.482*		6.565*	
Full Model Fit		$\Delta\chi^2$ ($Adf = 9$)	30.526***		43.458***		34.522***		24.646**	

***: $p < 0.001$; **: $p < 0.01$; *: $p < 0.05$;

Figure 1a: Service-Attribute Model

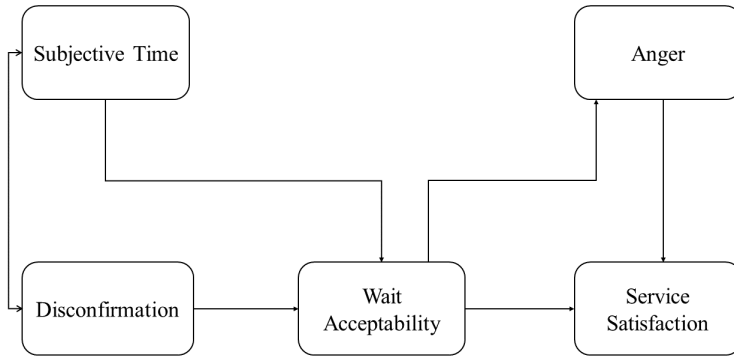


Figure 1b: Service-Cost Model

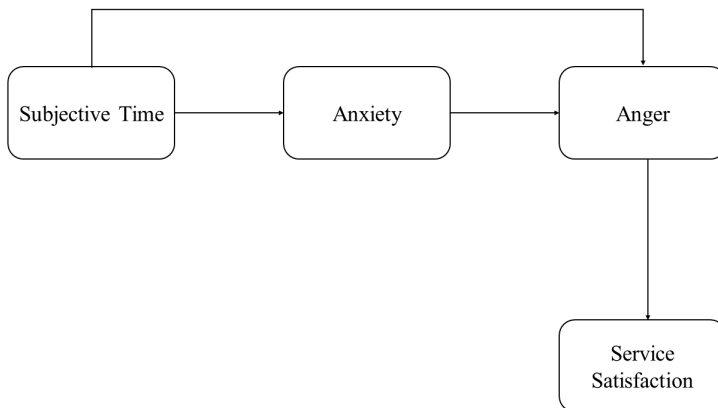


Figure 1c: Integrated 'Dual-Process' Wait Model

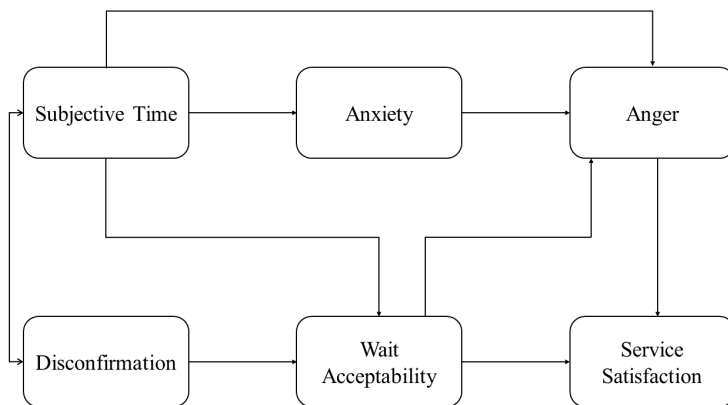
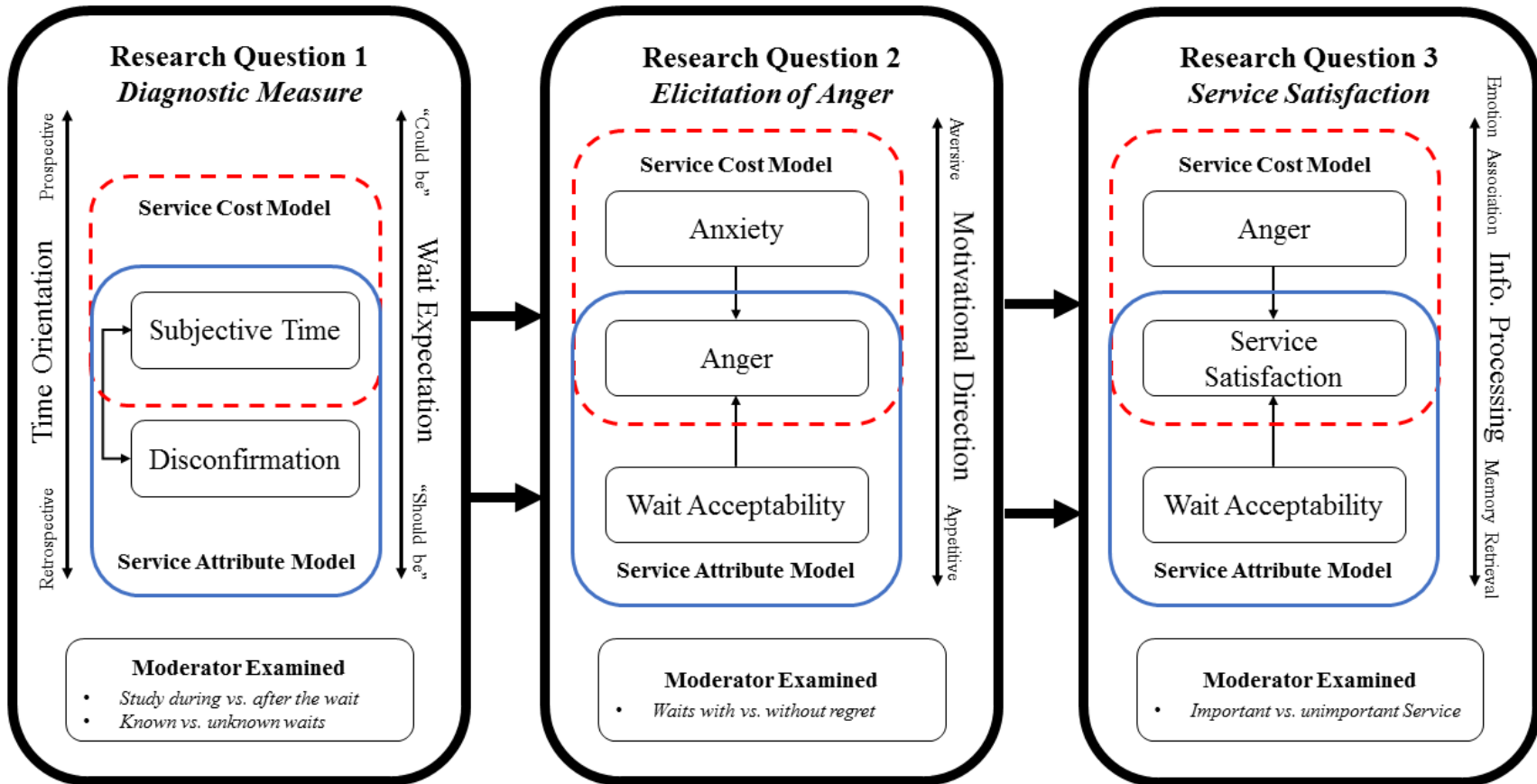


Figure 2: Conceptual Framework: An Integrated ‘Dual-Process’ Model of Customer Wait



ESSAY 2 – HEDONIC MESSAGING IN NEW PRODUCT PREANNOUNCEMENT

It is not uncommon for customers to delay their purchases while they wait for a new product, an upgrade, or a price drop (Greenleaf and Lehmann 1995). As a result, firms, especially those in highly competitive industries such as automobile and consumer electronics, use new product preannouncements (NPPs) to market new products prior to official product launches (Chellappa and Mukherjee 2021). Particularly, NPPs are a strong signaling tool that persuades customers to delay their purchase of competitors' products and creates the pent-up demand for the new product (Eliashberg and Robertson 1988). NPPs also educate customers, promoting product diffusion and adoption (Farrell and Saloner 1986). Moreover, NPPs create shareholder value by showcasing the future direction of the firm (Kim and Mazumdar 2016), and by preempting potential competitors from entering the market with competitive products or services (Bayus, Jain, and Rao 2001; Ofek and Turut 2013). Finally, in the case of start-ups, the NPP tool offers firms an opportunity to raise capital for production and other costs (Joenssen, Michaelis, and Mllerleile 2014). In short, the success of NPPs is critical to the success of firms.

There is scant scientific literature about what contributes to successful NPPs (Su and Rao 2010), even on fundamental questions such as how they impact customers' decision to wait for new product launches. Intuitively, customers decide to wait for the new product when the wait is intertemporally beneficial. In other words, customers will wait for a new product if its value, after adjusting for its wait time, is higher than the value of any existing products. However, NPPs have limited ways to impact any of these elements. First, NPPs have limited influence on the value of either current products or new products, because it requires huge efforts and resources to modify these products. Despite the fact that it largely determines the wait time of the new product, the

timing of NPPs is often beyond the firm's control because of product launches and/or NPPs from competitors (Su and Rao 2011). Particularly, a NPP can attract a portion of customers in the market to wait for an upgraded product (i.e., creating pent-up demand), and a part of such pent-up demand in the competitive market comes from customers withholding purchasing other firms' products. As a result, a firm could lose some of its potential customers after its competitor makes a NPP, if the firm does not offer a counter NPP. In this sense, the timing of a NPP is often dependent on the timing of its competitors' NPPs, which of course is beyond the firm's control.

Alternatively, the firm can design the message delivered in NPP, making the future product more attractive. For example, Homburg et al. (2009) suggests that how the NPP is presented can influence the success of the new products.. Particularly, the authors argued that NPP messages for pioneering and innovative products should focus on risk reduction, whereas messaging for incremental innovations should emphasize the relative advantages of the new product. Homburg et al. argue that preannouncements that focus on risk reduction are effective when there is not an established reference product in the category for pioneering products, because perceived risk is arguably the customers' primary concern. In contrast, incremental innovations can be compared to existing products in the market, and thus the customers are attracted primarily by the innovation's relative advantages.

Therefore, companies can benefit from an exploration of how messaging in new product preannouncements encourages customers to wait for upcoming products (i.e., how to create pent-up demand). There is a gap in extant literature that describes optimal messaging in new product preannouncements. This research explores the effectiveness of NPPs, with a fulsome exploration of intertemporal decision-making literature to answer the following research question:

What should an NPP message optimally contain to motivate customers to wait so as to purchase an upcoming new product in the future?

This research focuses on the impact of hedonic NPP messaging on changes in the discount rate of the future product. Hedonic NPP messages highlight sensational, experiential, and pleasant elements of the new product, and customers will use an affective, “hot” system to process these messages, enhancing the discount rate decline over time. Particularly, it has been well established in the intertemporal decision literature that the discount rate of a product declines as the wait time increases, because of (1) reduced sensitivity to the increase in wait time and associated opportunity cost and (2) increased activation of the high-level construal that fosters self-control and the future time preference (Frederick, Loewenstein, and O’donoghue 2002; Soman et al. 2005; Urminsky and Zauberman 2015). We argue that the use of an affective, “hot” system or valuation by feeling can enhance both discount rate reduction mechanisms. On one hand, the use of valuation by feeling leads to the insensitivity to variations in the quantity, enhancing the reduction in sensitivity to the increase in wait time and opportunity cost. On the other hand, the use of the affective, “hot” system enhances the activation of the abstract, high-level construal, fostering self-control and future time preference. As a result, we argue that hedonic messaging in NPPs can make the new product more attractive. We conducted four experimental studies to validate the proposed hypotheses.

This study contributes to several domains in the literature. To the NPP literature, we respond to the call for investigation on customers’ perceptions and choices to NPP message, and the findings of this study show that firms can use the NPP message to influence customers’ choices. To the intertemporal decision literature, we answer the call to identify the impact of different types of outcomes on discounting. To the hedonic-utilitarian literature, we revisit the under-explored

difference in information processing and confirm that hedonic information can activate the abstract, high-level construal.

Theoretical Background

Intertemporal Preference

When a customer can choose between buying an existing product or waiting for a new product that will be available sometime in the future studies show that such a tradeoff can be described in terms of an intertemporal preference. That is, the customer has a choice between a “sooner-smaller” and a “later-larger” option, a classic intertemporal decision scenario. When making the decision, customers will ignore the similar features and consider differences to reduce the decision-making complexities, referred to as isolation heuristics (Kahneman and Tversky 1979). Kahneman and Tversky (1979) used a two-stage game to show the isolation heuristic: In the first stage of the game, there is a 75% chance to end the game with nothing and a 25% chance to enter the second stage. If the participant enters the second stage, he or she must choose between 80% chance to win \$4,000 and 100% chance to win \$3,000. The researchers asked participants to make the choice *before* the game started, without knowing the outcome of the first stage. In theory, such a decision should be equivalent to choosing between a 20% chance to win \$4,000 and 25% chance to win \$3,000, combining the likelihood in both stages. However, the study outcome was more consistent with the outcome of choosing between 80% chance to win \$4,000 versus 100% to win \$3,000, evidently showing that the participants ignored the first stage of the game. In short, customers only consider changes of the new product compared to the current product when deciding whether to wait or not.

In intertemporal decision literature, it has been well established that a person favors the choice that has the higher (or highest) current value, which discounts that choice's perceived value by its temporal distance from the present time (Frederick, Loewenstein, and O'donoghue 2002; Soman et al. 2005). For example, a future event, such as receiving a product D units of time from now, will be valued with utility (V_D) at the time of receipt, and its current value (V_0) can be derived by the formula $V_0 = f(D)V_D$, where $f(D)$ is a discounting function whose value ranges between 0 and 1. In this sense, a customer's preference for the future product is determined by the perceived value of its superior features and its temporal distance from now. However, both elements (V_D and D) are difficult to change by the firm making the NPP, and thus the firm can only attempt to alter the discounting function (f) to influence its customers' preference. Particularly, the instantaneous discount rate ($r_D = -(f'(D))/f(D)$) reflects the magnitude of discounting in a unit of delay, all things being equal, at the given time point D . A lower average discount rate means a new product is less discounted or more preferred, compared to other products that have the same V_D and D . When it is difficult to measure the discount rate directly, one can assume an equal instantaneous discount rate for the present ($r_{D \rightarrow 0}$) and use the decline speed of a discount rate as a proxy for the average discount rate (Myerson, Green, and Warusawitharana 2001). In short, for identical new products available at the same time (i.e., identical V_D , $r_{D \rightarrow 0}$, and D), the faster the discount rate of a product declines, the lower the average discount rate it has, and the more the product is preferred.

Frederick et al., (2002) review numerous empirical studies and suggest that discount rates diminish over time. In other words, individuals have the tendency to discount more heavily for a delay in the proximal future than for the same delay in the distant future. For example, past studies often concluded that participants tend to forgo a much larger benefit sometime in the distant future in order to receive a relatively small benefit in the proximal future, as reflected in imputed discount

rates much higher than a reasonable one shaped by economic considerations (Frederick, Loewenstein, and O'donoghue 2002). Some examples of this phenomenon are the under-saving and early withdrawal from retirement plans, overpayment in advance for flat-fee gym contracts, preference for cheaper appliances over energy efficient ones, and the dismissal of long-term health harms caused by addictive behaviors.

As a result, the discounting function ($f(D)$) is considered hyperbolic, and Harvey (1989) offered an easy-to-interpret, generalized hyperbola model, $f(D) = (1 + \alpha D)^{-\beta/\alpha}$, for the discounting function. In this formula, D is the temporal distance, α reflects time preference, and β stands for opportunity cost. The distinction between time preference (α) and opportunity cost (β), two main components of discounting (Read 2004), allows one to interpret their impacts separately (Loewenstein and Prelec 1992). In this formula, the discount rate ($r = \beta/(1 + \alpha D)$) reflects opportunity cost when the individual is assumed to have no time preference ($r = \beta, \alpha = 0$), and it stands for time preference when opportunity cost is assumed absent ($r = 1/(1 + \alpha D), \beta = 1$).

Present bias literature leads to the conclusion that individuals' patience for the larger-later option will decline as the wait time for both options diminishes (Ainslie 1975). An individual's preference for the same set of options might be reversed as the time horizon changes, such that the discount rate diminishes over time (Frederick, Loewenstein, and O'donoghue 2002). In contrast, recent studies reviewed by Urminsky and Zauberman (2015) indicate that such a conclusion was derived indirectly from comparisons between imputed discount rates for the same set of options at different time horizons. Actual waiting may affect preferences so that actual preference reversal is unlikely (Luhmann 2013; Read, Frederick, and Scholten 2013), if not in the opposite direction (i.e., increasing patience as time diminishes) (Dai and Fishbach 2013; Sayman and Öncüler 2009). In

this sense, it is safe to argue that the customers' preference for the new product is decided upon the receipt of NPP message, and it will not diminish as its wait time gets shorter.

To explain present bias, some psychological studies consider several influencing factors, including: subjective time perception of the decision-maker (Zauberman et al. 2009) and the mental representation of the option (Fujita et al. 2006; Trope and Liberman 2010). Notably, these two explanations correspond to opportunity cost and time preference separately, and thus we will review these two components of discounting and explain how the corresponding factor changes them as the wait time increases.

Opportunity Cost Salience Mechanism

Opportunity cost reflects the loss of the benefits if the best alternative is selected, and it is free from the influences of one's time preference. Consider a tradeoff between \$100 today or \$110 a year later, and all rational individuals should prefer \$110 a year later if the market interest for the year is 5%. Even if an individual is very impatient and values \$100 today more than \$110 a year later, the individual can borrow \$100 from the market and pay \$105 back when receiving \$110 a year later, netting \$5 a year later. In this case, the 5% market interest is the opportunity cost for individuals to wait for \$110 a year later: they could have earned a \$5 interest for the year if choosing \$100 now. Similarly, when customers make purchase decisions in the context of having been exposed to new product preannouncements, waiting for the new product incurs opportunity cost because the customer must sacrifice the value created by using the current product that they would have alternatively bought.

However, opportunity cost is not always salient to the customers but requires their active consideration of implicit alternatives (Frederick et al. 2009; Spiller 2011). Frederick and his

colleagues (2009) first posited that opportunity cost is often neglected in decision-making, because decision makers restrict their thoughts to salient situational elements and neglect relevant information that is implicit. For example, they found that purchase intention diminishes when the opportunity cost of the purchase is explicitly reminded (e.g., use “keeping money for other purchases” instead of “not buying” in the choice). Spiller (2011) further suggests that the consideration of opportunity cost is determined by the accessibility of alternatives, such as the typicality and limitation of the resource-use. In this sense, the opportunity cost to wait for a future product might not be salient to the customers, especially when no information is explicitly offered.

The time perception factor follows the logic that present bias is the outcome of the distorted mapping of objective time to perception. Particularly, Zauberan et al. (2009) revealed that the customer’s perception of the length of time horizon is not linear but close to logarithmic, which results in the declining discount rates. The researchers found that the length of one year is perceived merely 24% longer, on average, than that of three months, and the discount rate largely remains constant after the perceived time length is adjusted. Zauberan et al. argued that the logarithmic function arises because sensation and perception are subject to contraction, and thus the threshold to distinguish two stimuli, such as duration, increases monotonically as the intensity of stimuli increases. As a result, it gets more difficult to perceive the increase of duration as its length increases, and individuals become less sensitive to the increase in opportunity cost as the length of the wait grows, resulting in a declining discount rate.

Future Time Preference Mechanism

Time preference, on the other hand, describes the individual’s preference when the value of two options is the same after the adjustment for opportunity cost. Consider the tradeoff between

\$100 today or \$110 a year later again, the two options are equivalent after considering opportunity cost if the market interest is 10%. In this case, time preference describes the tendency to prefer one choice over the other. Extant literature suggests that individuals have inconsistent time preferences, in the way that they prefer the present when the time horizon is short but prefer future when the time horizon is long (Frederick, Loewenstein, and O'donoghue 2002). For example, more people prefer \$100 now over \$110 a year later, but more people prefer \$100 five years later over \$100 four years later, even if the market interest remains constant at 10%. Such a shift in time preference reflects a decline in the discount rate over time, which can be explained by the change in the mental representation of options.

Mental representation is rooted in the construal level theory, which denotes different types of mental representations of objects and events (Trope and Liberman 2003, 2010). Particularly, there are two construal levels. The high-level construal directs individuals to consider in an abstract, coherent, and superordinate manner, while the low-level construal leads to thinking in a concrete, less structured, and subordinate manner (Trope and Liberman 2003). For example, when talking about smartphones, individuals with a low-level construal think of a specific product (e.g., iPhone) but those with a high-level construal consider the conceptual category of smartphone (i.e., digital devices). Moreover, Trope and Liberman (2003, 2010) established that the psychological distance of an object, including the temporal distance, impacts its mental representation – people use higher levels of construal to represent a product as its psychological distance increases. In this sense, the mental representation of a future product becomes more concrete as it gets closer to present. Finally, the high-level construal enhances self-control (Fujita et al. 2006; Fujita and Carnevale 2012; Malkoc, Zauberman, and Bettman 2010), because it enables individuals to “see the forest beyond the trees (Fujita et al. 2006, p. 352)”. In other words, individuals are more likely to have a high,

abstract mental representation of a product as it is available to purchase in a more distant future, and the high-level construal allows more self-control, resulting in a declining discount rate.

In sum, customers are less willing to wait for a new product as they must wait for a longer time. However, such a reduction can be remedied by (1) reducing the customers' salience to the increase in opportunity cost, such as by reducing their sensitivity to the increase in the objective wait length, and (2) increasing the customers' time preference for future, such as by increasing the high, abstract construal which in turn enables more self-control. Below, we argue that hedonic messages can achieve both functions.

Hedonic vs. Utilitarian

There is a large body of academic literature discussing hedonism and utilitarianism, two commonly used concepts distinguishing customers' motives, attitudes, and consumptions (e.g., Alba and Williams 2013; Babin, Darden, and Griffin 1994; Hirschman and Holbrook 1982; Voss, Spangenberg, and Grohmann 2003). Utilitarianism emphasizes functional, instrumental, and practical elements, whereas hedonism centers around sensational, experiential, and pleasant ones (Voss, Spangenberg, and Grohmann 2003). Notably, other labels are also described in scientific research, including "necessities versus luxuries" (Kivetz and Simonson 2002), and "affect-poor versus affect-rich" (Rottenstreich and Hsee 2001). Admittedly, utilitarianism and hedonism are distinct dimensions that are independent from each other (Voss, Spangenberg, and Grohmann 2003), but past studies use them to contrast the difference in the dominant feature(s) of the product or service (e.g., Dhar and Wertenbroch 2000; Okada 2005). Similarly, in designing NPP messages, companies can emphasize features and uses of the product to frame the NPP message as either

hedonic or utilitarian. For example, the firm can emphasize its product's authentication system or entertainment system to craft utilitarian or hedonic NPP messages.

The key difference between hedonism and utilitarianism is how people process the information. Particularly, hedonic information is processed more by feelings or in a "hot", affective system, but utilitarian information is processed more by calculations or in a "cold", calculus system (Alba and Williams 2013; Hirschman and Holbrook 1982; Metcalfe and Mischel 1999). Such a difference in the information processing is inherently rooted in their definitions. Particularly, one of the most widely accepted definition suggests that hedonic consumptions are "those facets of consumer behavior that relate to the multisensory, fantasy, and emotive aspects of one's experience with products (Hirschman and Holbrook 1982, p. 92)", which inherently involves relatively more use of the affective processing style. In addition, cognitive processing is more likely when the decision-maker has a utilitarian consumption motive, because the goal is to solve a specific problem and thus requires more deliberation and effort (Garrido-Morgado et al. 2021; Homburg, Koschate, and Hoyer 2006; Klein and Melnyk 2016). In this sense, customers are more likely to use their feelings to process hedonic messages but process utilitarian messages more in a cognitive manner.

As such, hedonic NPP messages inhibit the negative impact of wait time on the customers' preference for the preannounced product because (1) they reduce customers' sensitivity to changes in valuation and thus weaken customers' salience to opportunity cost, and (2) they enhance the abstract mental representation of the future product and thus promote future time preference. On one hand, individuals are insensitive to variations in quantities when evaluating hedonic options due to greater use of valuation by feelings (Hsee and Rottenstreich 2004; Rottenstreich and Hsee 2001). Hsee and Rottenstreich (2004; 2001) found that the relationship between value and scope

is influenced by how people process the information. These researchers show that when customers process information based on deliberation and rule (i.e., valuation by calculation), changes in scope have relatively constant influence on value. However, when people process the information based on association and affect (i.e., valuation by feeling), value is highly sensitive to the presence or absence of a stimulus but largely insensitive to further variations in scope. Such a distinction results from the divergence between valuation by calculation and valuation by feeling: the former is quantitative and explicitly considers scope, whereas the latter is qualitative and depends on the nature of a stimulus. As we noted earlier, hedonic information is processed more by feeling, whereas utilitarian information is processed more by calculation. Thus, people are less sensitive to scope changes when considering hedonic options than they are for utilitarian ones. For example, Wakefield and Inman (2003) demonstrate that consumers are less price-sensitive when buying hedonic products and services than utilitarian ones. Following this logic, customers are less sensitive to the increase in opportunity cost when waiting for hedonic products than for utilitarian products, and thus, the discount rate of a hedonic product drops faster than that of a utilitarian one as the wait time increases.

Hedonic information is processed more in the affective system, enabling a more abstract mental representation and thus inhibiting the present bias. As noted above, hedonic objects are processed more by feeling or in the hot, affective system, activating the high-level, abstract construal. Particularly, Scarpi (2021) argued that the link between hedonism and high-level construal has been implied in empirical evidence with the bridge of regulatory focus. On one hand, Pham and Avnet (2004) argued that the affective information processing has a better fit with the promotion focus, because its eagerness nature encourages the use of heuristics and inferential, affective processing, as well as the reliance on internal inputs. Roy and Ng (2012) showed that

promotion-focused individuals exhibit more positive attitude toward products when their hedonic elements are highlighted.

On the other hand, some studies have noted a regulatory construal fit, linking the promotion regulatory focus and high-level construal (Lee, Keller, and Sternthal 2010). Particularly, Lee et al (2010) argue that “eagerness nature” of promotion regulatory focus makes individuals more willing to entertain alternative possibilities, which can be offered by the abstract, high-level construal. Liberman et al. (1999) also noted that “a promotion focus might encourage a more abstract and general representation of a task because the goals of advancement and growth depend on finding multiple means of making progress (p. 1143).” As such, hedonic cues could result in more abstract mental representation of the product due to the use of the affective processing system and the activation of the promotion regulatory focus.

Scarpi (2021) advances that customers tend to prefer desirability-related (abstract) options over feasibility-related (concrete) options when shopping hedonically. As noted earlier, the high, abstract construal enables people to “see the forest beyond the trees (Fujita 2008; Fujita et al. 2006, p. 352)” and exert self-control to prefer a future option. Thus, when waiting for hedonic products, customers are more likely to have a high, abstract construal, promoting self-control and in turn the future time preference. Therefore, the discount rate of a hedonic product drops faster than that of a utilitarian one as the wait time increases.

Summary and Hypotheses

The decision to wait for the future product when receiving a NPP message involves an intertemporal tradeoff, despite all key elements being fixed in this decision, including the value of both options and the temporal distance of the future option. As a result, we argue that the customers’

preference is determined by how the future product is discounted. The discounting function can be indicated by how fast the discount rate declines over time such that the faster the discount rate declines, the more the future product is preferred. Particularly, the decline of discount rate over time is due to (1) the decrease in the sensitivity to changes in wait time and opportunity cost and (2) the increase in the use of the high-level construal, which allows more self-control and thus more preference for future.

We argue that hedonic NPP messages, processed more by feeling or by the affective, hot system, can enhance both mechanisms, accelerate the discount rate's decline, and lead to a higher preference for the future product. Particularly, the valuation by feeling reduces the sensitivity to changes in duration and thus the associated opportunity cost, and the affective, hot system enhances the use of high-level construal, which in turn increases self-control and the future time preference. Thus, we offer the following hypotheses (see Figure 1):

-----Insert Figure 1 Here-----

H1: Hedonic NPP messages make the future product more preferred in the sense that it accelerates the decline of the discount rate of the future product caused by the wait time increase.

H2: The above-mentioned impact of hedonic NPP messages is achieved by both (a) inhibiting the increase in customers' salience to opportunity cost and (b) enhancing the increase in customers' future time preference.

Study 1

Study 1 offers a preliminary demonstration of the moderating effect of hedonism on the reduction in the discount rate decline caused by the wait time increase. Particularly, we examine whether hedonic consumption motives can reduce the drop in the willingness to wait for the future product as its wait time increases. We manipulated participants' consumption motives, instead of the dominant features of the focal product, because it allows a more fundamental contrast between hedonism and utilitarianism (Alba and Williams 2013).

Design, Methods, and Participants

The study is a 2 (wait time: short vs. long) x 2 (consumption motives: hedonic vs. utilitarian) between-subject experiment. In the study, participants first provide demographic information and answer questions measuring consumer innovativeness about tech gadgets. Then, they go through an “upgrading laptop” scenario which contains manipulations for both wait time and consumption motives. Finally, participants answer questions that measure the dependent variable, manipulation effectiveness, and controls.

We adapted the scenario description used by Park and Mowen (2007) because replacement purchases are a typical scenario where customers pay attention to new products and NPPs. Particularly, participants are informed that they need a replacement for their old laptop, and they would find a perfect one that is just preannounced and requires a wait. In the scenario, we used laptop as the focal product because (1) customers have both hedonic and utilitarian motives to use it; (2) it is an innovative product that most participants are familiar with; and (3) it was often used in past studies (e.g., Okada 2005; Park and Mowen 2007). The manipulation of consumption motives is achieved by informing participants the use of the old laptop (i.e., for work vs. entertainment). The manipulation of wait time is achieved by varying the wait time for the new product (i.e., two vs. six months).

The measure of consumer innovativeness in tech gadgets is adapted from Goldsmith and Hofacker’s (1991) scale, whose predictive validity on domain-specific consumption is “average-to-high” (Roehrich 2004). The DV, the likelihood to wait, is derived by asking participants to indicate their likelihood to wait for the new product instead of buying the current product right away on the line-length scale anchored by “nope” on the left (measured as 0 on the unnumbered line) and “yeah, for sure” on the right (measured as 100). Also, participants are asked to indicate

their perceived use of the laptop on an 8-point bipolar scale (functional use vs. entertainment use) and their perceived length of the wait on the line-length scale anchored by “very short” (measured as 0 on the unnumbered line) and “very long” (measured as 100) at two ends. Lastly, participants indicate the price for the laptop they thought it was in their decision-making process.

Participants were recruited from Amazon Mechanical Turk platform (Mturk). A potential limitation with the data obtained from Mturk is that it may be less reliable (Buhrmester, Kwang, and Gosling 2011), thus multiple checks were set to ensure only careful participants complete the study. A total of 235 US participants entered the study, 76 were removed due to failing at these checks, and finally 159 finished the study.

Results

First, we conduct independent sample t-tests to validate manipulations in the study. All manipulations worked as expected. Particularly, participants in the hedonic condition indicated the use of the product more for fun than those in the utilitarian condition did ($t = 8.105, p < .001$). Also, participants in the long wait time condition perceived the wait longer than those in the short wait time condition did ($t = 3.447, p < .01$). Then, a two-way ANOVA is used to examine the impact of different wait lengths and consumption motives on consumers’ likelihood to wait. The result suggests a statistically significant interaction between wait length and consumption motives on consumers’ likelihood to wait ($F = 3.996, p < 0.05$). Specifically, participants’ likelihood to wait for the new laptop decreases more severely as the wait time increases when having utilitarian consumption motives (mean = 80.25 vs. 52.27, 95%CI [69.46, 91.04] vs. [43.17, 61.36]), compared to when having hedonic motives (mean = 78.84 vs. 70.64, 95%CI [68.81, 88.87] vs. [64.55, 79.74]) (see Figure 2). Lastly, neither participant’s assumed price for the laptop nor their consumer innovativeness has a significant impact on the DV.

-----Insert Figure 2 Here-----

Discussion

This study offers preliminary evidence for the moderating effect of hedonism on the decline of discount rates as the wait time increases (H1). Particularly, customers with hedonic consumption motives have a smaller drop in their willingness to wait for a future product as the wait time for the product increases, compared to those with utilitarian motives. As discussed, the willingness to wait for a future product is determined by the severity of the discounting for the period, which can be interpreted as the average discount rate for the period. Note that participants in our study have similar likelihood to wait for the new product when the wait time is short, meaning that the average discount rate for the shorter wait (i.e., two months) is indifferent in both hedonic and utilitarian conditions. However, the average discount rate, reflected by the likelihood to wait, varies for the longer wait (i.e., six months), suggesting that discount rate decreases at different speeds in these two conditions. As such, as indicated by the likelihood to wait, the average discount rate decreases faster in the hedonic condition than in the utilitarian condition, supporting H1.

Yet, several issues remain unaddressed. First, the manipulation is on consumption motives, not on the NPP message. While we showed that consumers' hedonic consumption motives can inhibit the reduction in the discount rate as the wait time increases, the study did not provide direct evidence for the argument that using hedonic NPP messages achieves the same effect, despite being sound in theory. Second, we did not measure the discount rate or its changes directly in the study. Instead, we used willingness to wait as the DV since it is of ultimate interest to practitioners. Finally, the study uses a between-subject design, and it compares the average group preferences. Some might argue that the result is not representative of the drop in the discount rate over time when it happens to the same individual.

Study 2

Study 2 attempts to replicate the conclusion drawn from Study 1 and address several issues noted above. In response to these concerns, this study uses direct manipulations of the NPP message, instead of participants' consumption motives, which offers direct evidence for the effectiveness of using the hedonic message in NPPs. Second, the study measures participants' willingness to pay for products available at different time points, so that discount rates are imputed and compared directly. Third, the study uses a between and within-subject mixed-design approach, illustrating changes in the individual's discount rate as the wait time increases. In addition, the study uses a different product category (i.e., mobile phone) to illustrate the generalizability of the moderation.

Design, Methods, and Participants

The study is a 2 (focal features between subject: hedonic vs. utilitarian) x 2 (wait time horizon within subject: now vs. three months from now) mixed-design experiment. The study has a similar design as Study 1, except that participants must indicate their willingness to pay for new products available at different time points. Here we measure 'willingness to pay' instead of 'willingness to wait' so that we can derive the discount rate without potential confounds in the translation from utility to decision to wait. Particularly, participants are informed that they need an upgrade for their old mobile phone, and they would find a perfect phone that is just preannounced. Notably, the new phone has some extra features, besides upgraded core features, compared to their old phone. In the study, participants indicate their willingness to pay for the product individually when it requires to wait for zero (i.e., no wait required), three, and six months.

To identify focal hedonic and utilitarian features, we conducted a pilot study that surveyed 184 Mturk participants. In this pilot study, we first introduced participants the definition of hedonism and utilitarianism with examples and then asked them to categorize four products or features. Participants must categorize all these four products or features into the right category to proceed to the feature evaluation phase. In this feature evaluation phase, participants indicated how they think about ten features randomly picked from 32 alternatives in terms of their hedonism-utilitarianism perception and their importance in the purchase decision. Specifically, participants were asked whether the feature is hedonic or utilitarian in their opinion (1: “Extremely Utilitarian to 6: “Extremely Hedonic”), and how important the feature is in their purchase decision (“1: Not important at all” to 5: “Extremely important”). Details are provided in the Appendix, Study 2 – Pilot Study. From the pilot study, we identified three hedonic and three utilitarian features that received divergent ratings on the hedonism-utilitarianism perception but similar ratings on the importance in the purchase decision. Specifically, hedonic features include “free access to Netflix dramas, shows, and movies”, “free access to music streaming service”, and “system optimized for mobile gaming”, and utilitarian features are “water resistance”, “storage expansion”, and “system optimized for productivity at work”. In addition, we identified two neutral features (i.e., neither hedonic nor utilitarian) that are highly important in the purchase decision – “latest, most powerful processor” and “5G network support”. Based on these outcomes, the manipulation for focal features in this study is achieved by illustrating either hedonic or utilitarian features of the phone. Also, both neutral features are mentioned.

Several distinctions in the measurement should be noted. First, the DV is different from Study 1. Particularly, we informed participants the retail price for the new phone (\$499) and asked them to indicate a price at which they will buy the product without much thinking (i.e., the “no-

brainer” price). The range of this no-brainer price was constrained between \$75 (i.e., 85% off) and \$499 (i.e., the MSRP) to ensure that the price entered is reasonable and fair. After this question, we then asked participants to indicate their willingness to pay for the new phone with varied wait lengths separately in a line-length scale anchored by “the ‘no-brainer’ price” and “the MSRP/retail price” at two ends. We, in the analysis, converted these indicators back to willingness to pay using their corresponding positions in the line (e.g., for the indicator right at the middle, the willingness to pay is the middle price between the “no-brainer” price and the MSRP). Finally, we calculated the discount rate for three months wait now ($R_{30} = \frac{WTP_0}{WTP_3}$) and for three months wait three months later ($R_{63} = \frac{WTP_3}{WTP_6}$) as the DVs in the analysis. Second, the perceived use of the phone is measured by three items (i.e., “work”, “instrument”, and “practical use” vs. “fun”, “recreation”, and “pleasure experience”) with a 8-point bipolar scale. Finally, we assessed the perceived value of focal features with three items (i.e., “importance”, “attractiveness”, and “value added”). To minimize the anchoring effect (cf Furnham and Boo 2011), the sequence to measure perceived length of the wait was randomized, and irrelevant questions were inserted in between.

Participants were recruited from Mturk, and multiple checks were implemented throughout the study. A total of 599 participants entered the study, and 235 successfully finished the study.

Results

First, for multi-item constructs, we examined their reliability and derived an aggregated score by confirmatory factor analysis (CFA). Particularly, the three-item measure of the perceived use of the phone achieved high reliability ($\alpha = .800$), and its aggregated construct explains 71.56% of the total variance. Also, the three-item measure of the perceived value of focal features achieved high reliability ($\alpha = .780$), and its aggregated construct explains 69.80% of total variance. Then,

we conducted independent sample t-tests to examine whether manipulations worked. As expected, focal features in the hedonic condition were perceived more hedonic compared to those in the utilitarian condition ($t = 2.645, p < .01$), but no significant differences were found in terms of the perceived value of these focal features between conditions ($t = -.927, p > .1$). Also, as indicated in the result of a pair sample t-test, participants feel that a six-month wait is significantly longer than a three-month wait ($t = 4.472, p < .001$).

To examine the moderation effect, we leveraged Montoya's (2019) MEMORE plugin in SPSS, which analyzes the impact of between-subject moderators in the repeated-measure design. MEMORE plugin generalizes moderation analysis in two-instance repeated measures design to include two probing methods, simple-slopes and the Johnson-Neyman procedure, allowing better assessment of the patterns of moderation effects. The result shows that the overall model difference is significant ($F = 4.13, p < .05$). The between-subject condition, focal features, has significant moderating effect on the DVs ($t = 2.03, p < .05$), and the further analysis of conditional effect suggests that discount rates in the two wait horizons differs more significantly in the hedonic condition than in the utilitarian condition (effect = .0293 vs. -.0148, 95%CI [.0030, .0616] vs. [-.0429, .0132]). Bootstrapping estimates suggest that the discount rate slightly declines as the wait is moved further from present in the hedonic condition (mean = .9361 vs. .9668, 95%CI [.9208, .9725] vs. [.9453, .9890]), whereas it remains consistent in the utilitarian condition (mean = .9581 vs. .9729, 95%CI [.9429, .9749] vs. [.9555, .9927]) (see Figure 3). Finally, the perceived value of the product did not have a significant moderation effect when added as the second moderator.

-----Insert Figure 3 Here-----

Discussion

Consistent with Study 1, this study offered direct evidence that the speed of discount rate decline over time varies depending on how the product is introduced, supporting H1. In this study, the discount rate for products that emphasize their utilitarian features remains more consistent as the wait time increases than that for products emphasizing hedonic features. More importantly, the change in discount rate for the hedonic condition is in the positive direction, meaning that the discount rate becomes less severe (i.e., declines) and thus the product is less discounted as the time increases. Combining Study 1 and 2, we can safely conclude that hedonism moderates the impact of wait time on discount rate, such that discount rate declines faster as the wait time increases.

Study 3

Study 3 attempts to validate the proposed moderated-mediation mechanism of hedonic NPP messages on customers' willingness to wait for the future product. Particularly, the study identifies three mediators, the decision-makers' construal level, their impatience, and their salience to the alternative use of the money, as proxies for time preference (α) and opportunity cost (β) correspondingly. As discussed earlier, the impact of hedonism can be achieved by reducing the salience to the opportunity cost increase, which increases the willingness to wait. Thus, we expect that customers' salience to opportunity cost can mediate the impact of hedonism via the opportunity cost route. Also, the impact of hedonism on time preference is achieved by making the mental representation more at the high, abstract level, which increases the willingness to wait via enabling greater self-control. In this sense, we expect that construal level and impatience can jointly mediate the impact of hedonism via the future time preference route.

Design, Methods, and Participants

The study is a 2 (wait time: short vs. long) x 2 (consumption motives: utilitarian vs. hedonic) between-subject study. Similar to the procedure of Study 1 participants first provide demographic information, then go through a “supporting crowdfunding project” scenario which contains manipulations for both wait time and consumption motives, and finally answer questions about measures of the DV and mediating constructs, manipulation checks, and controls.

In this study, different from the previous two, we investigate participants’ decision to support crowdfunding projects⁶. This context, similar to replacement purchases, is a typical scenario where customers might consider waiting for innovative products. Moreover, this scenario provides more realistic insights for smaller companies and start-ups that might rely on crowdfunding projects for raising funds for mass production. Particularly, participants are informed that they want to buy a new camera bag and find a perfect one in a crowdfunding project, which requires a donation in exchange for a future delivery of the product after its mass production. In the scenario, we used camera bag as the focal product to expand the generalizability of our findings. Camera bags are selected as the focal product because they are popular crowdfunding projects, and the use of camera bags can be both hedonic and utilitarian.

The manipulation of the consumption motives is achieved by offering different reasons for the purchase and desired features of the bag. In the utilitarian condition, participants were informed that they want a camera bag for their part-time work as a freelance photographer, and the bag must (1) be customizable for various tasks, (2) have an easy access to the camera, and (3) be comfortable and durable. In the hedonic condition, on the other hand, participants were informed that they want

⁶ Here we specifically refer to reward-based crowdfunding (or pre-ordering) projects, where fundraisers pledge for an amount of money in exchange for future products (Polzin, Toxopeus, and Stam 2018). In this sense, crowdfunders in these projects are pre-ordering the product by donating (a given amount) to the project.

a camera bag for their new hobby of outdoor photography, and the camera bag must (1) be well designed to show their seriousness about the hobby, (2) be stylish to make the person carrying it look fashionable, and (3) be a popular gear for professionals to enhance their confidence as a newbie. These different features are inspired by Keinan et al.'s (2016) study on handbag, where they concluded utilitarian and hedonic attributes of handbag based on over 1,000 online reviews. Moreover, the manipulation of wait time is achieved by informing participants different estimated wait time: in the short condition, participants were informed to expect the bag delivered in four months, but the wait time is twelve months in the long condition.

Similar to Study 1, the DV, willingness to wait for the future product is measured by asking participants to indicate their likelihood to make a donation to get the camera bag in the future on a line-length scale that is anchored “0 chance” and “100% sure” at two ends. In this scenario, participants who make the donation are supposed to be willing to wait for a camera bag delivered in the future. Also, manipulation checks follow the practice in Study 1 and 2. The hedonism-utilitarianism perception is measured by the same three items used in Study 2, and the perceived length of the wait is measured by the same line-length scale used in Study 1. Moreover, we used the Behavioral Identification Form (BIF, Vallacher and Wegner 1989) to measure the participant's dominant construal level right after their decision. The BIF form is a 25-item inventory that lists mid-level neutral actions (e.g., “making a list”) and requests subjects to identify its description between the low (e.g., “writing things down”) and the high level (e.g., “getting organized”). Finally, we adopted a six-item⁷ scale from Burks et al. (2012) to measure participant's impatience, and we

⁷ Burks et al. (2012) used World Health Organization's self-reported scale to measure short term impatience, and the exact wording of the questions was as follows: (i) How often do you have trouble wrapping up the final details of a project, once the challenging parts have been done? (ii) How often do you have difficulty getting things in order when you have to do a task that requires organization? (iii) How often do you have problems remembering appointments or obligations? (iv) When you have a task that requires a lot of thought, how often do you avoid or delay getting started? (v) How often do you fidget or squirm with your hands or feet when you have to sit down for a long time? and (vi) How often do you feel overly active and compelled to do things, like driven by a motor?

developed a three-item scale to measure participant's salience to opportunity cost. Particularly, the three-item opportunity cost salience scale asks participants if the following thoughts came to their mind when reading the scenario and making decisions: alternative bag (e.g., I could buy something else that does not require such a long wait), alternative channel (e.g., I should check more shopping sites or even go to local stores to find a better bag), and potential loss (e.g., I will not buy another camera bag during my wait, and I have to delay my plan to shoot outdoor).

Participants were recruited from Mturk, and multiple attention checks were implemented to ensure the data quality. Of 661 participants who entered the study, 308 successfully completed the study and passed all attention checks.

Results

We first examined the reliability of multi-item scales, derived a consolidated score for each construct using confirmatory factor analysis (CFA), and tested the effectiveness of manipulations. Particularly, the three-item scale of hedonism-utilitarianism perception achieved high reliability ($\alpha = .843$), and the consolidated score explains 76.13% of the total variance. The six-item scale of impatience also achieved high reliability ($\alpha = .810$), and the consolidated score explains 63.43% of the total variance. The three-item scale of opportunity cost salience achieved satisfactory reliability ($\alpha = .576$), and the consolidated score explains 54.35% of total variance. Finally, the BIF measure of the construal level achieved high reliability ($\alpha = .791$), but we derived the consolidated score by averaging instead of CFA, because the form is fully composed of binary choices. The manipulation checks showed that both manipulations were successful as expected. The perceived length of the wait for the short condition is shorter than that for the long condition ($t = -5.192, p < .05$), and the product is perceived more hedonic in the hedonic condition than in the utilitarian condition ($t = 4.447, p < .001$).

We then conducted ANOVA to examine the focal moderation effect of hedonic motives. As expected, the result suggests a significant interaction of wait length and consumption motives ($F = 4.065, p < .05$). Particularly, when having the hedonic consumption motive, participants' willingness to wait for the product has an insignificant reduction (Mean = 70.05 and 67.44; 95%CI [62.34, 77.77] and [59.80, 75.08]), but the reduction becomes significant when they have utilitarian motives (Mean = 73.50 and 55.66; 95%CI [66.00, 80.99] and [48.81, 62.52]) (see Figure 4). In other words, participants with utilitarian consumption motives become less willing to wait for the product as the wait length increases, but those with hedonic motives do not reduce their willingness to wait.

-----Insert Figure 4 Here-----

We finally investigated two proposed moderated-mediation mechanisms via opportunity cost and time preference separately (see Figure 5 and 6). Particularly, we used Hayes' (2012, 2017) PROCESS SPSS macro to analyze moderated-mediation effects. For the opportunity cost mechanism, we first regressed opportunity cost salience on wait time and consumption motives, as well as their interaction. The result suggests that wait length has a significant main effect on the salience to opportunity cost ($t = 2.74, p < 0.01; B = .2963; 95\% \text{ CI } [.0832, .5094]$). In other words, a longer wait time leads to greater salience to associated opportunity cost. More importantly, the interaction has a significant negative impact ($t = -2.65, p < .01; B = -.3061; 95\% \text{ CI } [-.5337, -.0785]$), confirmed by the test of unconditional interaction ($F = 7.0038, p < .01$). The further analysis of conditional effect suggests that when participants have hedonic motives, their salience to alternative bags is less increased as the wait time increases, compared to those having utilitarian motives (effect: $-.6280$ vs. $-.0100, t = 3.66$ vs. $-.07, p < .01$ and $> .05; 95\% \text{ CI } [-.9653, -.2906]$ vs.

[-.3105, .2905]). In this sense, hedonism can inhibit the increase in the salience to opportunity cost caused by the increase in wait length.

-----Insert Figure 5 and 6 Here-----

The DV, willingness to wait, was then regressed on wait time and opportunity cost salience. The result indicates that both have significant negative impacts ($t = -2.57$ and -4.98 , both $p < 0.01$; $B = -8.39$ and -8.43 ; 95% CI [-14.82, -1.97] and [-11.76, -5.10]). In other words, wait length has both direct and indirect impacts on customers' willingness to wait for future products. Particularly, the indirect impact of wait length is achieved via making associated opportunity cost more salient, which in turn reduces the willingness to wait. However, such an indirect impact can be weakened by hedonic consumption motives, which inhibits the impact of wait length on making opportunity cost more salient. We finally used bootstrapping to estimate the effect size of moderated-mediation and the direct/indirect effect. The moderated-mediation effect is significant (index = 2.5806; 95%CI [.5039, 5.1162]), and so is the direct effect (effect = -8.3994, 95%CI [-14.5440, -2.5823]). Notably, the indirect effect is significant in the hedonic condition but not in the utilitarian condition (effect: 5.32 vs. .1640; 95%CI [2.1173, 9.3071] vs. [-2.4253, 2.9167]). That is, the hedonic condition has an indirect effect, partially eliminating the impact of wait length on willingness to wait, whereas the utilitarian condition does not have such an indirect effect.

On the other hand, for the time preference mechanism, we found no significant moderated-mediation effect solely via either construal level or impatience. Particularly, the impact of wait length on construal level is moderated by hedonism, but construal level has no significant impact on the DV, willingness to wait. Whereas impatience has a direct impact on the DV, the impact of wait length on impatience is not moderated by hedonism. As discussed in the Theoretical Background Section, it is possible that construal level has an indirect impact on willingness to wait,

mediated by impatience. As a result, we expect hedonism to moderate the first part of the serial mediation of construal level and impatience.

We analyzed the moderated serial mediation model, where the impact of wait time on the DV is mediated by construal level and impatience in sequence, in several steps. First, construal level was regressed on wait time and consumption motives, as well as their interaction. The result suggests that hedonism has a positive main effect on construal level ($t = 2.31, p < 0.05; B = .0408; 95\% CI [.0061, .0755]$), meaning that hedonism leads to a higher-level construal. More importantly, the interaction term has a significant positive impact ($t = 2.27, p < .05; B = .0529; 95\% CI [.0070, .0989]$), confirmed by the test of unconditional interaction ($F = 5.1366, p < .05$). In other words, hedonism interacts with wait time to influence customers' dominant construal level. Further analysis of conditional effects suggests that the moderation is significant in the hedonic condition but not in the utilitarian condition (effect: $.0731$ vs. $-.0373, t = 2.37$ vs. $-1.08, p < .01$ and $> .05; 95\%CI [.0123, .1339]$ vs. $[-.1053, .0308]$). In short, customers with hedonic motives are more likely to have the abstract, high-level construal, and such likelihood is enhanced as wait length increases.

We then regressed impatience on wait length and construal level, and the result suggests that they both have significant negative impacts ($t = -2.07$ and $-3.01, p < 0.05$ and $< .01; B = -.2095$ and $-.7970; 95\% CI [-.4091, -.0100]$ and $[-1.3181, -.2760]$). In other words, customers' impatience is reduced by both long wait and high-level construal. Next, we regressed the DV on wait length, construal level, and impatience, and the result suggests that wait length and impatience have significant main effects ($t = -3.00$ and $-4.70, both p < 0.01; B = -9.1987$ and $-8.1113; 95\% CI [-15.2262, -3.1713]$ and $[-11.5081, -4.7146]$). That is, customers' willingness to wait is negatively impacted by wait length and their impatience, but not by their dominant construal level. However,

it should be noted that construal level has an indirect impact via impatience, and more importantly, such an impact is moderated by hedonism. Finally, we used bootstrapping to estimate the moderated-mediation effect and direct/indirect effect. The moderated-mediation effect is significant (index = .3422; 95%CI [.0239, .8684]), and so is the direct effect and the indirect effect via impatience (effect = -9.1987 and 1.6996, 95%CI [-15.2262, -3.1713] and [.0893, 3.8607]). Notably, there is a conditional indirect effect via the serial mediation of construal level and impatience. Particularly, this indirect effect exists in the hedonic condition but not in the utilitarian condition (effect: .4724 vs. -.2409; 95%CI [.0426, 1.1998] vs. [-.8097, .1858]). That is, the hedonic condition has a serial mediation effect, partially eliminating the impact of wait length on willingness to wait, whereas the utilitarian condition does not have such a serial mediation effect.

Discussion

In the study, we replicated the moderated effect of hedonism in a third product type and in a different purchase scenario, illustrating that the proposed moderation effect of hedonism is robust. Moreover, we validated two proposed moderated-mediation mechanisms – via opportunity cost salience and via time preference, a serial mediation of construal level and impatience. In the opportunity cost route, we showed an indirect impact of wait length in hedonic condition only, and such an impact is positive on the willingness to wait. In the time preference route, we showed an indirect impact of wait length only in hedonic condition, and such an impact is again positive on the willingness to wait. In short, we illustrated that hedonism could reduce the negative impact of wait length on willingness to wait by reducing the salience of opportunity cost and increasing the future time preference. Moreover, this study reveals the mechanisms for such a moderation effect. Particularly, the moderation takes effect on the link between wait length and the opportunity cost

saliency in the opportunity cost route and on the link between wait length and the dominant construal level in the time preference route.

Despite offering strong evidence for moderated-mediation mechanisms, the study remains vulnerable to a critical constraint. The two mechanisms are not isolated in the examination, and thus there might be confounds. Particularly, the abstract, high-level construal can also contribute to a reduction in the saliency of opportunity cost, because abstraction is naturally against attention to details. Built upon this logic, an earlier study showed that high-level construal prevents people from detecting their omission of information in their decisions and beliefs (Pfeiffer et al. 2014). Moreover, the constructs measured in the study are proxies for the two discounting components, and concerns might remain about their representativeness. This issue is particularly relevant to the serial mediation mechanism used in the time preference route, despite it being theoretically sound.

Study 4

Study 4 attempts to estimate the two components in discount rate – time preference (α) and opportunity cost (β) – to offer more direct evidence for proposed moderated-mediation processes. Particularly, we used the Convex Time Budgets (CTB) instrument (Andreoni and Sprenger 2012) to estimate these two components. This approach offers a stronger predictive power than the traditional multiple price lists because it corrects the bias caused by utility function curvature (Andreoni, Kuhn, and Sprenger 2015). Specifically, the traditional multiple price lists approach asks participants to indicate their preference in multiple sets of two options and estimate the discount rate by observing when participants switch their preferences. However, this approach is based on the assumption that people have a linear utility function for money, but this assumption is in question because the utility function for money is concave due to risk aversion (Andreoni and Sprenger 2012). Different from this traditional approach, the CTB approach requests subjects to

allocate the payment between two time periods subject to a budget constraint and an interest rate, allowing for separate estimation of the time preference parameters and the curvature of the utility function. However, it should be noted that estimates in CTB are built upon an alternative discounting function, widely adopted by economists (Laibson 1997; O'Donoghue and Rabin 1999, 2015). Particularly, this quasi-hyperbolic discounting function assumes that present bias is about now (O'Donoghue and Rabin 2015). As a result, this quasi-hyperbolic discounting function features a higher discount factor (β) in the first period but a constant one (δ) for all subsequent periods ($f(D) = \beta\delta^D, D > 0$). In this function, β measures time preference, and δ stands for opportunity cost. Despite its differences, this discounting function fits in the decision to wait for the new product as the implicit alternative is to buy the current product making the two equivalent.

Design, Methods, and Participants

This study is a 2 (wait length: short vs. long) x 2 (consumption motives: utilitarian vs. hedonic) between-subject study. The procedure, context, and scenario of the study are all identical to Study 3. However, the study does not measure mediating constructs but utilizes the CTB instrument to impute parameters for opportunity cost and time preference.

The CTB instrument requires multiple allocations of a fixed budget (e.g., 100%) between a smaller payment (a_t) available sooner (at time t) and a larger payment (a_{t+k}) available later (at time $t + k$). In the study, we informed participants that they have made the donation and will receive a camera bag as described in the scenario and that we will offer them money in two payments in exchange for receiving that camera bag. We then asked participants to indicate the percentage to receive in each payment such that they are indifferent to receive these two payments or the camera bag. To minimize the effort in math, participants just have to indicate the percentage of the total budget allocated to the sooner payment, and the rest will be allocated to the later

automatically. Also, the exact amount of money in each payment is calculated automatically and showed in real-time to ensure participants know how much to receive in each time point when making the allocation.

Moreover, participants in the task must go through several rounds where both t and k of options vary. In this study, we implemented two payment times for the sooner payment (i.e., $t = 0$ or 1), three payment times for the later payment (i.e., $t + k = 1, 3,$ or 6). Participants in each round must allocate the budget under different a_t and a_{t+k} sets ($(a_t, a_{t+k}) \in \{(.19, .20), (.18, .20), (.16, .20), (.14, .20), (.2, .25)\}$). In sum, participants will make 30 allocations between two options (i.e., six rounds and five sets in each round). To ensure participants completely understands the task, an example is offered, and a test is implemented after the instruction. We recruited 484 participants from Mturk, and 151 successfully completed the study.

Results

Like Study 3, we first examined the reliability of multi-item scales, derived a consolidated score for each construct, and checked the effectiveness of manipulations. Particularly, we used the three-item scale to measure hedonic-utilitarian perception, and it achieved high reliability ($\alpha = .880$) and the consolidated score explained 80.70% of total variance. The independent sample t-test suggests that participants in the hedonic condition perceived the product more hedonic than those in the utilitarian condition ($t = 2.544, p < .05$). Also, participants in the long condition felt the wait length was longer than those in the short condition do ($t = 2.222, p < .05$).

We then conducted ANOVA to examine the focal moderation effect of hedonic motives (see Figure 7). As expected, the result suggests a significant interaction of wait length and consumption motive ($F = 4.803, p < .05$). Particularly, participants' willingness to wait for the

product has an insignificant increase when having hedonic consumption motive (Mean = 75.74 and 81.39; 95%CI [69.36, 82.12] and [75.10, 87.68]), but the willingness to wait significantly reduces as the wait time increases when having utilitarian motives (Mean = 79.45 and 70.52; 95%CI [72.67, 86.22] and [63.68, 77.36]). This result is consistent with prior studies, supporting the mediation effect of hedonism in NPPs.

-----Insert Figure 7 Here-----

Finally, we estimated the parameters representing opportunity cost and time preference, using their allocations in the CTB task. Particularly, the log-transformed allocation ratio between the earlier and the later payment (i.e., $\ln\left(\frac{c_t}{c_{t+k}}\right)$) is a linear combination of the log-transformed opportunity cost ($\ln \beta$), time preference ($\ln \delta$), and interest rate ($\ln \frac{a_t}{a_{t+k}}$) (Andreoni and Sprenger 2012). As such, we used linear regression to estimate the average β and δ in different conditions. The result (see Figure 8 and 9) suggests that parameters for opportunity cost are closer to 1 (i.e., no discounting for opportunity cost) in the hedonic condition ($\delta_t = .9714$; $\delta_{t+k} = .9911$), compared to those in the utilitarian condition ($\delta_t = .8454$; $\delta_{t+k} = .9180$). Note that the discount rate diminishes over time (i.e., $\lim_{t \rightarrow \infty} \delta_t = 1$), and thus the discount rate diminishes faster in the hedonic condition. More importantly, the discounting in the hedonic condition remains unchanged ($f(4) = .9714^4 = .8904$; $f(12) = .9911^{12} = .8983$), but it increases in the utilitarian condition ($f(4) = .8454^4 = .5108$; $f(12) = .9180^{12} = .3582$). In other words, hedonism moderates the impact of wait time increases on discounting for opportunity cost. Moreover, parameters for time preference are larger in the hedonic condition ($\beta_t = .5371$; $\beta_{t+k} = .7177$) than in the utilitarian condition ($\beta_t = .1875$; $\beta_{t+k} = .1094$). That is, present bias in the hedonic condition is less severe than that in the utilitarian condition. More importantly, such a present bias declines (i.e., becomes closer to 1) as the wait time increases from four months to 12 months in the hedonic condition,

whereas it increases (i.e., gets closer to 0) in the utilitarian condition. This divergence supports that hedonism moderates the impact of wait time increases on discounting for time preference.

-----Insert Figure 8 and 9 Here-----

Discussion

This study confirms the moderation of hedonism on the reduction of willingness to wait caused by the increase in wait time. More importantly, it offers an alternative approach to validate proposed moderated-mediation mechanism. Particularly, we used the CTB instrument to estimate discounting parameters for opportunity cost and time preference separately, eliminating potential confounds caused by proxy constructs. The result shows that opportunity cost is gradually neglected as the wait time increases, and the neglect occurs faster (earlier) when hedonism is involved. Evidently, we showed that participants in the hedonic condition took equivalent discounting for four-month wait and 12-month wait, whereas those in the utilitarian condition still discounted more severely for 12-month wait than for four-month wait. The result also suggests that hedonism moderates the diminishing of present time preference along with the increase in wait time. Evidently, we showed that present time preference diminishes in the hedonic condition but amplifies in the utilitarian condition, when comparing four-month vs. 12-month wait.

General Discussion

In this study, we explored how to optimally design the NPP message to motivate customers to wait for the upcoming new product, given that firms have limited control over what and when to preannounce. Particularly, we argued that a hedonic NPP message could potentially increase customers' willingness to wait for the future product. By conducting four experiments, we demonstrated that such an impact is achieved by reducing customers' sensitivity to opportunity

cost as well as by promoting their future time preference. Particularly, in the first study, we showed that customers with hedonic consumption motives have higher willingness to wait for the future product, compared to those with utilitarian motives. In the second study, we replicated the conclusion of the first study by directly comparing customers' discount rates for future products with an emphasis on hedonic or utilitarian features.

In the third study, we showed two mechanisms for hedonism that moderates the impact of wait time on willingness to wait. On one hand, we found that hedonic motives inhibit the increase in the salience of opportunity cost as wait time increases, and the salience of opportunity cost reduces the willingness to wait. On the other hand, we found that hedonic motives facilitate the use of the high-level construal caused by wait time increases, and the high-level construal leads to less impatience and subsequently increases the willingness to wait. In the last study, we estimated the parameters of time preference and opportunity cost in customers' discounting function with the Convex Time Budget instrument, and we found that hedonic motives facilitate the decline in the salience of opportunity cost and the diminishing of present time preference as the wait time increases.

Taken together, the key findings of this study are: (1) hedonism promotes customers' willingness to wait for the future product, in the sense that it facilitates the reduction in discount rate over time; (2) such a facilitation is achieved through two approaches: (a) hedonism reduces customers' sensitivity to opportunity cost associated with the wait; and (b) hedonism enhances customers' use of high-level construal, which leads to greater self-control. These findings have the following theoretical and empirical contributions.

Theoretical Contributions

In their review of the NPP literature, Su and Rao (2010) concluded that “the existing literature on NPP looks at the issue mainly from the firm’s perspective about the effects of NPP. It will be valuable to examine from the demand side how customers’ perceptions, preferences, and choices are affected by the firm’s preannouncements (p. 670)”. We respond to this call and investigate the impact of NPP messages on customers’ choice. Our findings about the use of hedonic NPP message showed that firms can have impact on customers’ perceptions, preferences, and choices by carefully designed NPP messages. Building on this point, future studies can borrow from fruitful findings in the advertising literature. For example, we identified that construal level is a key mediating factor that influences customers’ willingness to wait, and past studies have identified various factors that alter individuals’ construal level, including psychological distance (Trope and Liberman 2010), regulatory focus (Pham and Avnet 2004), and gain/loss framing (White, Macdonnell, and Dahl 2011). Thus, future studies can investigate these factors in the NPP context and contribute to the discussion on the design of NPP messages.

Also, our findings about the impact of hedonism add to the intertemporal choice literature. Past studies have explored the difference in discount rates underlying the differences in decision making for hedonic versus utilitarian outcomes but did not reach a conclusion (see Alba and Williams 2013 for a review). Our finding suggests that difference exists in the change of discount rate as wait time increases, which answers this question in the literature. This finding can encourage future studies to explore the influence of the types of outcomes involved in the intertemporal decision-making. As noted earlier, the framing of the outcome might lead to differences in the perception of these options, which potentially results in divergence in the choice. This prediction is consistent with some findings in the literature. For example, past studies

acknowledged that the magnitude of the outcome affects the level of discounting in the sense that smaller amount is discounted more steeply than large amounts (Thaler 1981).

Moreover, this study has implications for the discussion on the differences between hedonism and utilitarianism. Particularly, our findings validate that hedonism is more likely to activate the mental representation at the high level, establishing another connection among consumption motives, regulatory focus, and construal level. Past studies have noted that people will feel right when the construal level matches the regulatory focus (i.e., abstract-promotion and concrete-prevention), when the construal level matches consumption motive (i.e., abstract-hedonic and concrete-utilitarian), and when the regulatory focus matches consumption motive (i.e., promotion-hedonic and prevention-utilitarian) (Lee, Keller, and Sternthal 2010; Roy and Ng 2012; Scarpi 2021). Future studies can examine the idiosyncratic fit among these concepts simultaneously, which, if validated, suggests they could share a novel conceptual latent structure. As noted in the literature, hedonic goods are often considered as vices that people exercise impulse to obtain (Khan, Dhar, and Wertenbroch 2005); promotion regulatory focus has the nature of eagerness and risk-taking (Pham and Avnet 2004); and abstract construal is linked to the desirability of the event (Fujita et al. 2006; Trope and Liberman 2010). All these three constructs seem to share the common base that they are processed in the “hot”, affective system. In short, we believe explorations in this direction have the potential to further advance our knowledge about peoples’ perception and cognition.

Relevant to the point above, our findings highlight an under-explored difference between hedonism and utilitarianism – hedonic information is processed in the “hot”, affective system, while utilitarian information is processed in the “cold”, calculative system. Coinciding with this view, Alba and Williams (2013) reviewed a stream of study on pricing pleasure and suggested that

consumers are more willing to pay for hedonic products than for utilitarian ones. Yet, our findings extend that the difference is not merely limited to price *per se*, but also applies to other quantifiable resources, such as time and effort. In this sense, future studies can examine how customers spend non-monetary resources differently to obtain hedonic and utilitarian products. For example, it is possible that people are less sensitive to effort invested when pursuing hedonic objects, which results in more willingness to invest effort in the pursuit.

Finally, our study is different from other studies because we consider a unique comparison between hedonic and utilitarian options. The majority of the literature contrasts hedonic and utilitarian options in the way that hedonic goods are linked to vices, but utilitarian ones are related to virtues (Khan, Dhar, and Wertenbroch 2005). However, we do not consider the hedonic option as the vice option. Rather, we compare whether hedonic or utilitarian option customers prefer in the distant future. Intuitively, the hedonic option wins out. This conclusion, though intuitive, is often neglected in the comparison between hedonism and utilitarianism.

Managerial Implications

The success of NPP is critical to the success of the firm, and the most fundamental function of the NPP is to encourage customers to wait for the new product. In this case, our findings suggest managers to focus on the hedonic aspect of the future product in their NPP messages when attempting to attract more customers to wait for the new product. This is because by introducing the hedonic features, customers are less salient to the opportunity cost of waiting, and they can exert more self-control with greater use of the high-level construal in processing the information. The opposite also applies to the situation where firms want to minimize the cannibalization impact on the existing products caused by NPP: firms can focus on utilitarian features to discourage customers to wait for the new product.

Extending this conclusion, we further suggest that managers can optimize their promotion strategy about future events (e.g., annual sales) with a selective emphasis. For example, the firm can emphasize the hedonic aspect of the event in the distant future, so that customers are more willing to wait for the event. When the event is approaching, the firm can shift to the utilitarian aspect of the event to match the customers' dominant construal level. Of course, the opposite can be implemented when the firm attempts to minimize the cannibalization impact of the event.

Moreover, we showed two approaches to impact customers' willingness to wait, and managers can develop new strategies based on these ideas. On one hand, we reveal that customers are more willing to wait when they are less salient to the opportunity cost associated with the wait. In this sense, managers should attempt to establish a unique category in customers' mental account so that customers are less likely to think about its alternatives (Henderson and Peterson 1992). For example, a customer is more willing to wait for a new upgraded version of iPad when he or she differentiates iPad from other tablets. On the other hand, we show that customers are more willing to wait when they use the high-level construal to process the information. In this sense, as discussed earlier, managers can pair the hedonic aspect with both promotion regulatory focus and abstract mental representation, so that the use of high-level construal can be reinforced. For example, firms can emphasize the hedonic feature of the new product which can help in obtaining positive outcome and/or achieving overall goals.

Limitations

This study did not address the following issues. First, we cannot examine the moderated-mediation effects of hedonic motives simultaneously. In Study 3, we showed the two moderated-mediation routes of hedonism, but we cannot examine both routes at the same time because of the limitation in statistical methodology. Consequently, we do not know which route is more critical

in terms of the strength of the effect. Future studies might examine this issue by designing a smarter experiment. Second, all studies are developed in the hypothetical setting, which might not reflect how people behave in real life scenarios. Future studies can leverage the actual consumer data to examine this issue. Third, we did not explore the differences in hedonisms from different sources. In our studies, we used hedonic consumption motives and hedonic features of the product as the manipulation of hedonism. We do not know whether there is a difference in these two types of hedonic perceptions. Future studies can compare these two approaches in terms of the strength of the effect.

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Figures

Figure 1: Conceptual Framework

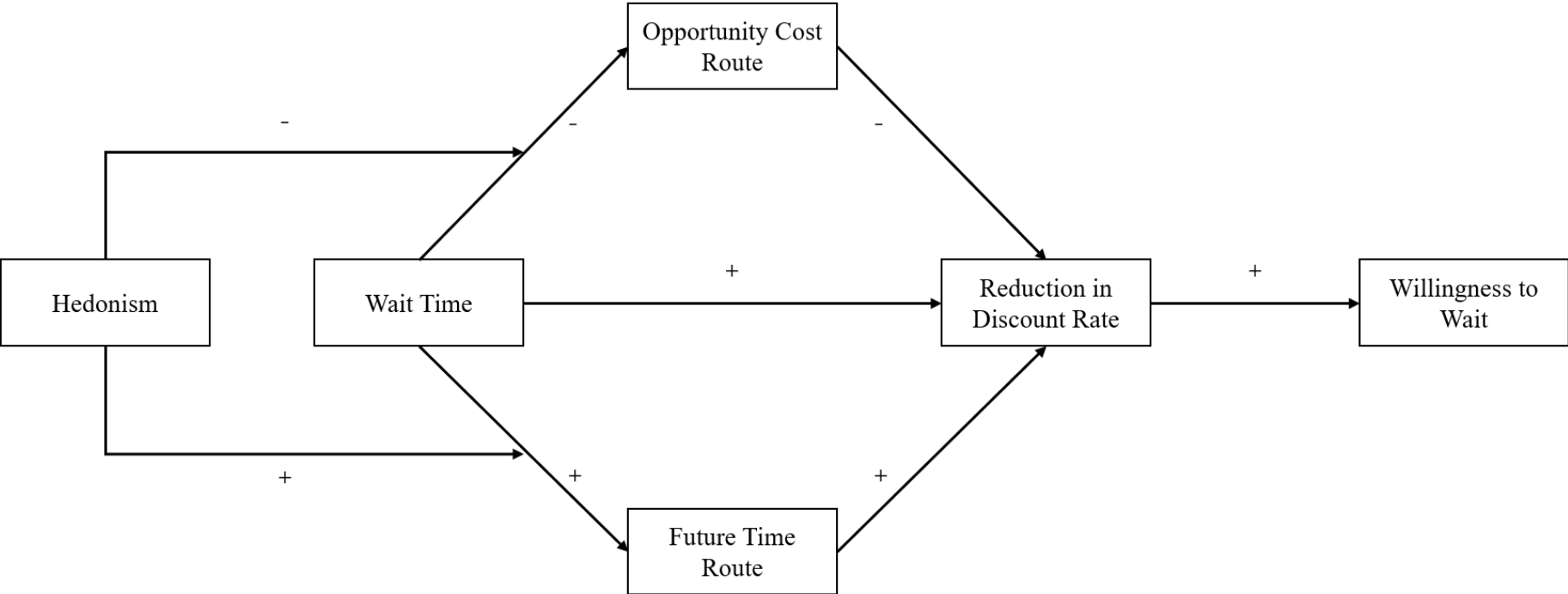


Figure 2: Comparison of Likelihood to Wait in Study 1

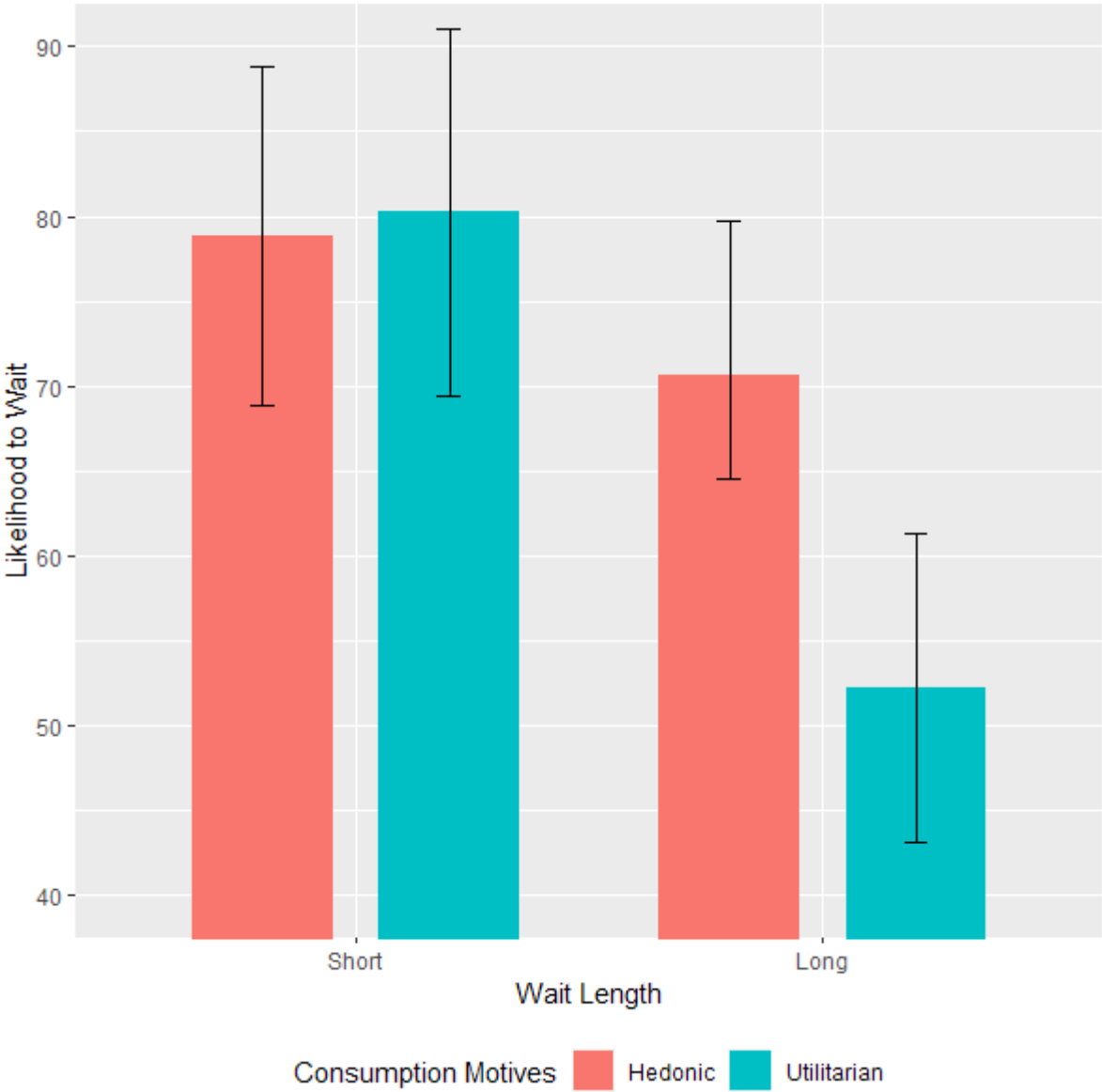


Figure 3: Comparison of Discount Rate in Study 2

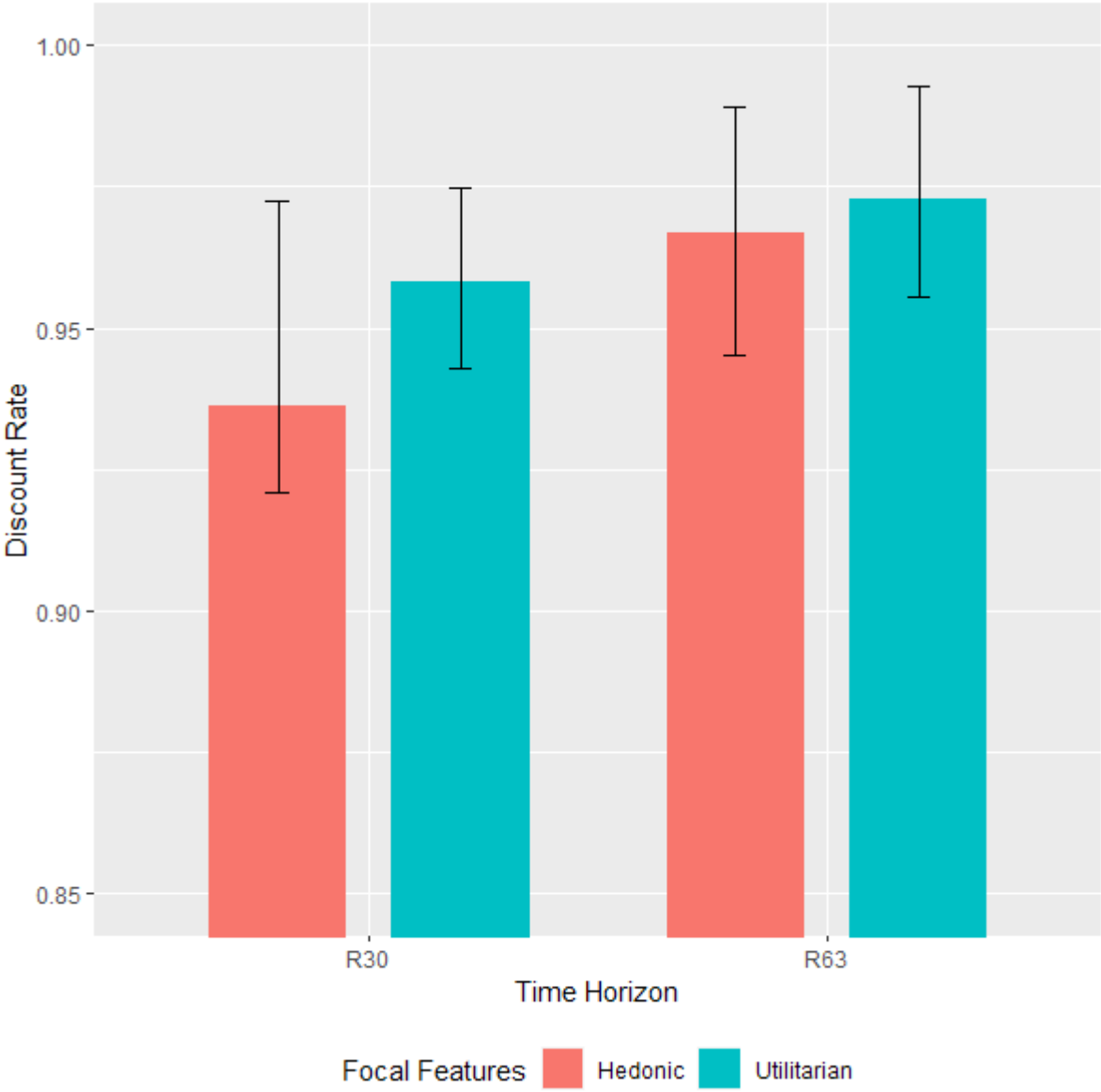


Figure 4: Comparison of Willingness to Wait in Study 3

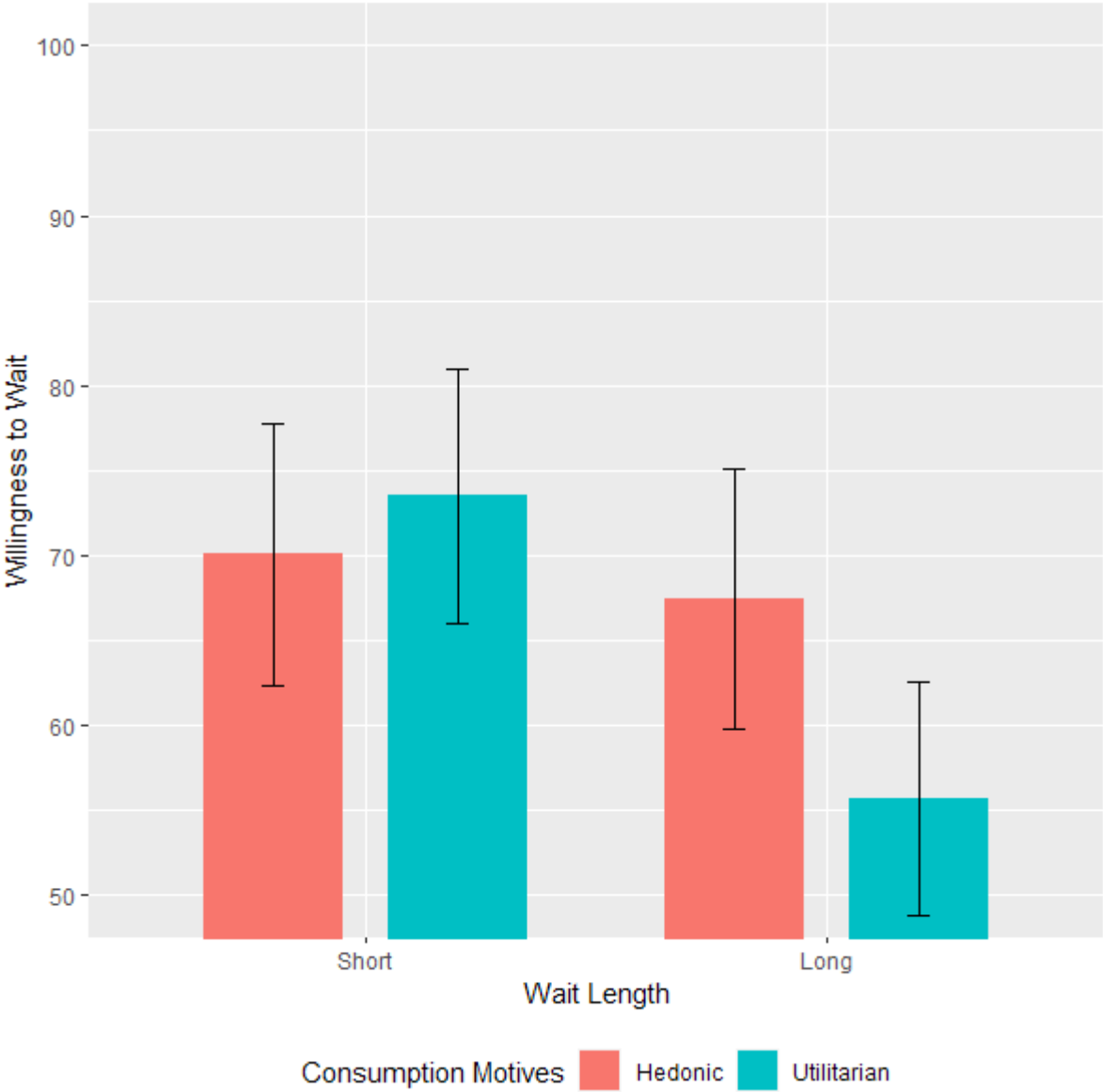


Figure 5: Moderated Mediation for the Opportunity Cost Route in Study 3

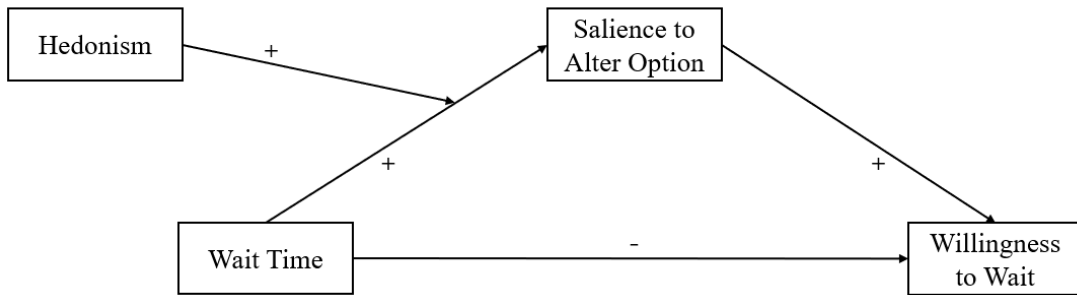


Figure 6: Moderated Mediation for the Time Preference Route in Study 3

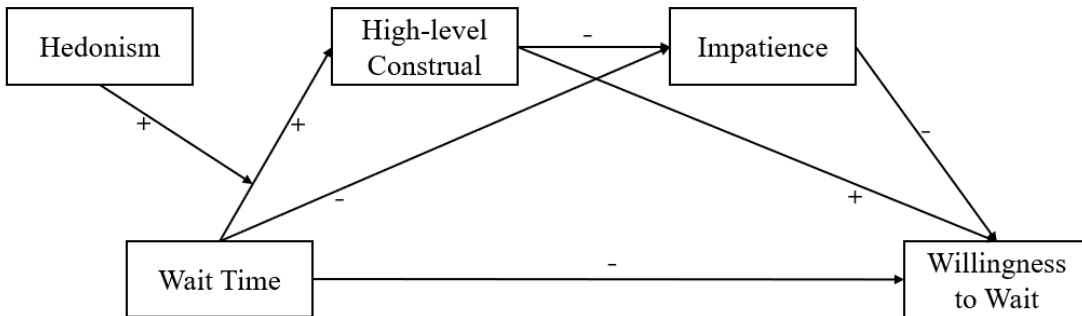


Figure 7: Comparison of Willingness to Wait in Study 4

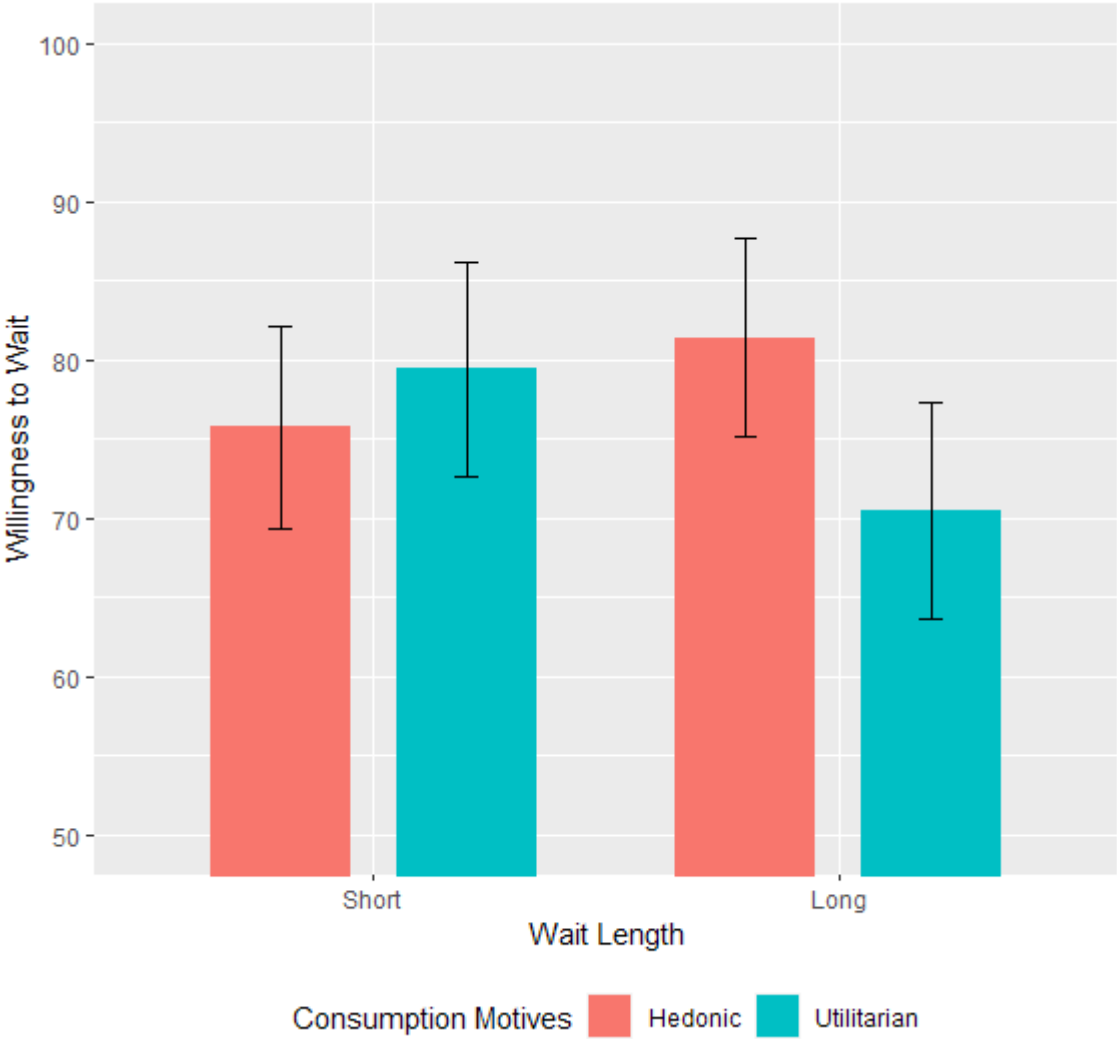


Figure 8: Comparison of Estimated Parameter for Opportunity Cost

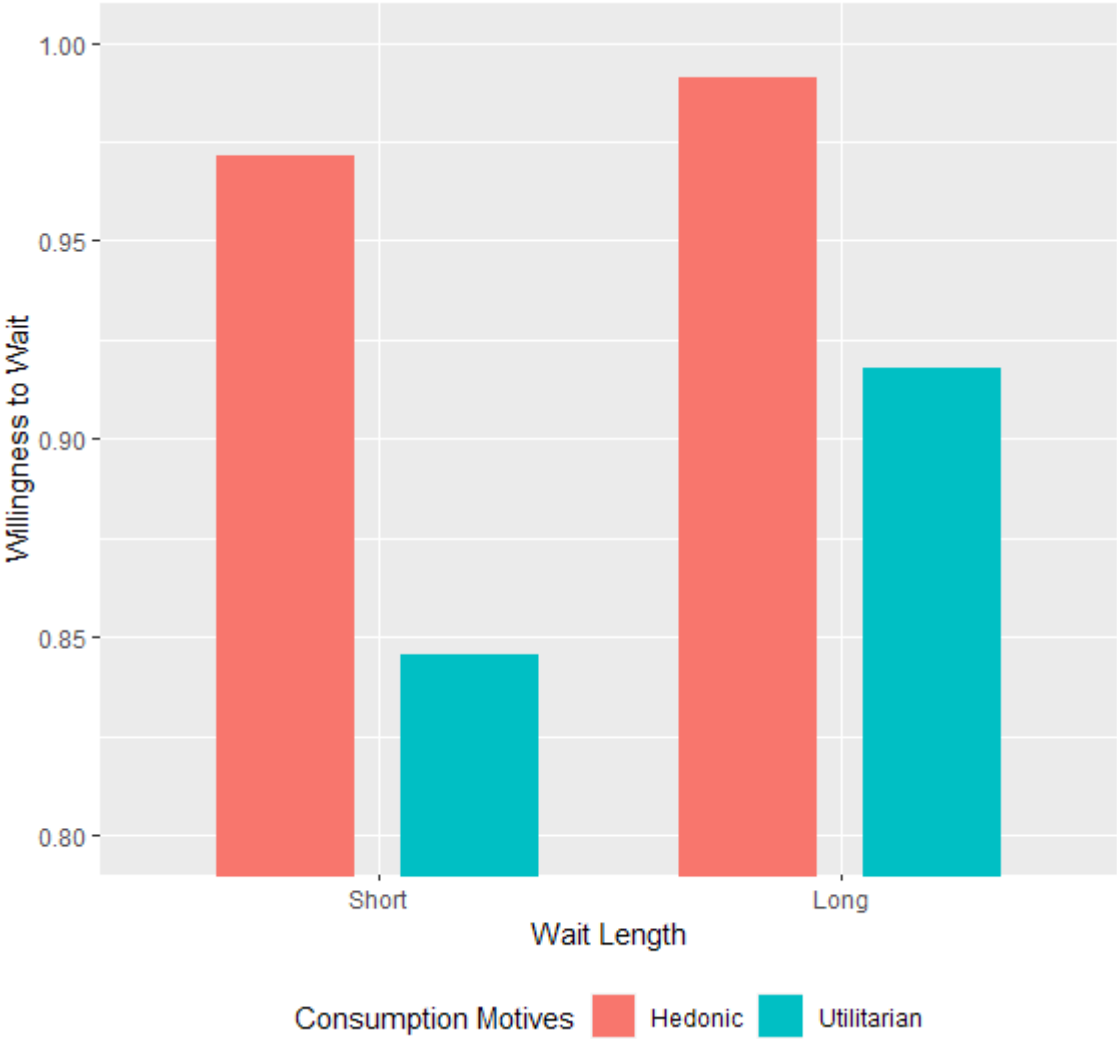
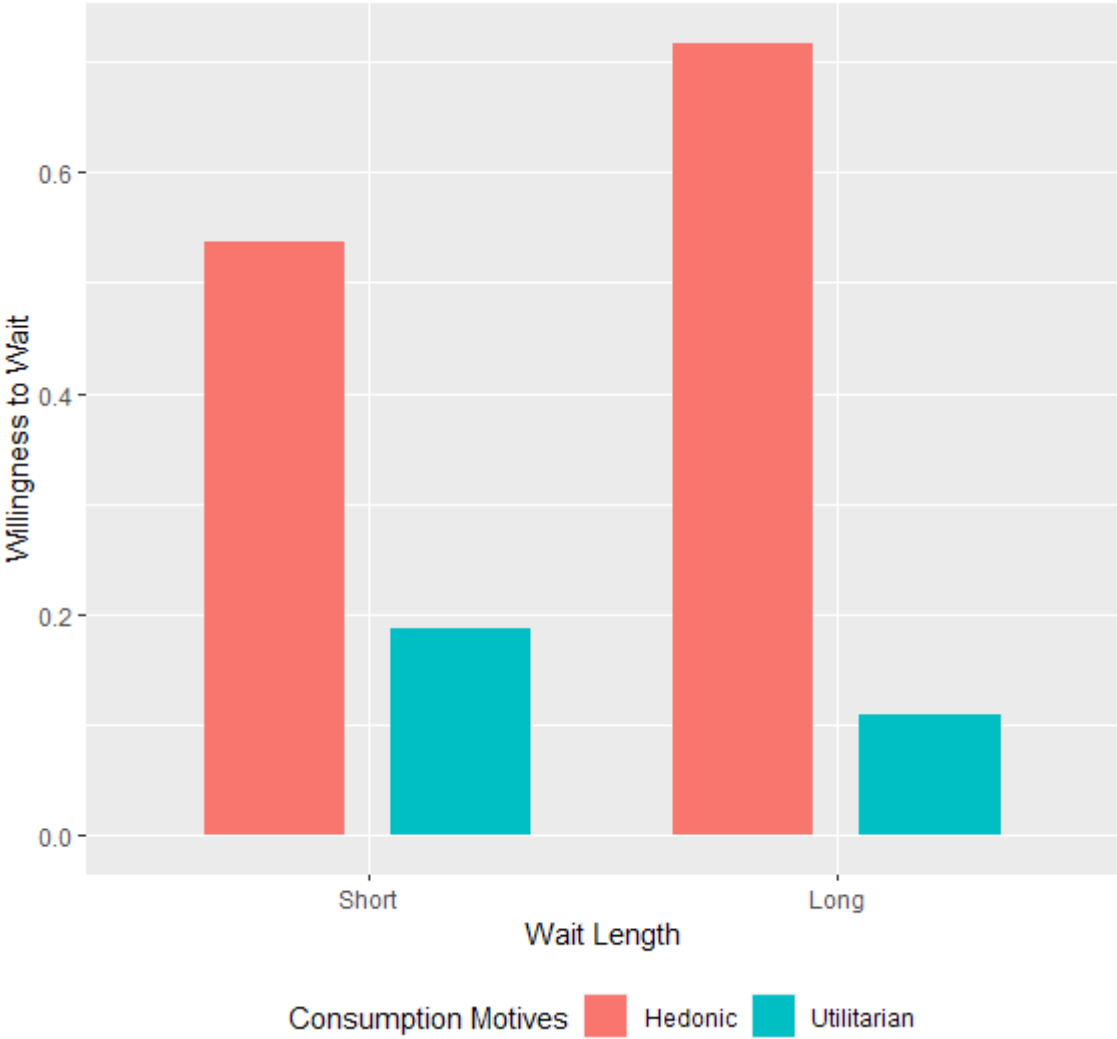


Figure 9: Comparison of Estimated Parameter for Time Preference



ESSAY 3 – STRATEGIC CUSTOMERS IN LOYALTY PROGRAM: A GOAL THEORY

PERSPECTIVE

It is not rare that customers wait to purchase an item or service at some future time in hopes of saving money. Some customers are apt to wait, and they are named as “strategic customers” in the dynamic pricing literature (e.g., Chen, Farias, and Trichakis 2019; Su 2007; Su and Zhang 2008). As reviewed later, the literature consistently considers that strategic customers are different from other customers in two main ways: they attempt to maximize utility derived from transactions, and they consider intertemporal transactions holistically. These two differences could be a result of differences in personalities. Particularly, Schwartz et al. (2002) found that people might seek the maximal utility (“maximizers”) or a balance between utility and effort (“satisficers”) in their decision-making, and thus maximizers are more likely to pursue maximal utility from transactions. Also, Choi et al. (2007) found that people can view elements in the world as interrelated (“holistic” thinkers) or separated (“analytical” thinkers), and thus holistic thinkers are more likely to view intertemporal transactions holistically. In this sense, we consider strategic customers as those who have personality traits to seek utility maximization and to think intertemporal transactions in a holistic manner.

In the past decade, these strategic customers have become the new norm in the market partly because of effective marketing promotions that reduce the online search cost of finding the best deals (Chen, Farias, and Trichakis 2019). For example, it is estimated that up to 20% of customers strategically delay their purchase of airline tickets to benefit from anticipated airfare sales (Li, Granados, and Netessine 2014). An ever increasing number of strategic customers creates new strategic marketing risks for companies which fail to recognize this segment of customers

(Cachon and Swinney 2009; Levin, McGill, and Nediak 2009). Retailers are estimated to suffer an approximate 15% loss in revenue due to strategic customers who anticipate price drops and delay purchases in response to dynamic pricing strategies (Cachon and Swinney 2009).

There is growing interest for scholars and managers in the increasing number of strategic customers using loyalty programs. Extant literature suggests that some loyalty programs are accommodating strategic customers by shifting from quantity-based to spending-based design (Chun and Ovchinnikov 2019; Leff 2015; Martin 2016; Mutzabaugh 2014). Quantity-based and spending-based designs are two predominant mechanisms of how customers are awarded premium status in a loyalty program. Quantity-based programs reward consumers based on the number of transactions, while spending-based programs rely on the amount consumers spend as a means of earning rewards.

The quantity-based programs in the airline industry, for instance, allow strategic customers to conduct “mileage runs” to achieve a higher tier status in an airline loyalty program with little cost. A “mileage run” is an airline trip designed and taken solely to gain maximum frequent-flyer miles, points, or elite status (Chun and Ovchinnikov 2019). For example, an experienced strategic Delta Airline customer with a budget of \$750 can achieve nearly 23,000 Delta miles in a week, rather than spending thousands and taking 30 flights to earn the second-tier status (Rosen, Walker, and Wichter 2019). Spending-based loyalty programs eliminate the potential for “mileage runs” by strategic customers (Chun and Ovchinnikov 2019), accounting for the trend in airline companies switching from quantity-based to spending-based designs in recent years (Leff 2015; Martin 2016; Mutzabaugh 2014).

Loyalty programs are a useful tool to build customer relationships, often using a nonlinear reward scheme (Stourm, Bradlow, and Fader 2015). That is a system whereby higher value products are awarded, and point values increase as customers accumulate increasing numbers of points. For example, a free night in a Hyatt Category 4 hotel (requiring 15,000 points) is worth \$200 on average, and a free night in a Hyatt Category 7 hotel (requiring 30,000 points) is worth \$500 (Johnson 2021). Strategic customers are forward-looking and attempt to effectively utilize their resources, and thus their redemptions are for mostly higher value products. As such, due to the strategies used by these deliberate customers, the distribution of the value of customers' redeemed rewards is likely to be skewed toward larger rewards, which ultimately impacts the financial performance of the loyalty program. Consequently, firms should assess their nonlinear schemes, given the ultimate financial impact of strategic customer choices.

Moreover, strategic customers can impact the efficacy of loyalty programs as a customer relationship tool, because they can engage in strategic points stockpiling for larger rewards rather than simply redeeming for rewards whenever it is possible (Dorotic et al. 2014; Stourm, Bradlow, and Fader 2015). Redemptions are understood to be the most important interactions that build relationships in loyalty programs (Henderson, Beck, and Palmatier 2011), and infrequent redemptions may not be in the best interest of companies offering loyalty programs. To illustrate this point, Dorotic et al. (2014) found that a loyalty program redemption can increase the frequency of, and the amount spent for future purchases. The researchers further report that those types of spending and purchase increases start from the moment a redemption decision is made and last for several weeks after the redemption is completed. Drawing from this finding, the authors advocated that firms should encourage frequent redemptions to sensitize consumers' responsiveness and increase their salience to the loyalty program.

Research also shows that the pursuit for the higher value reward moderates the positive relationship building effect just described. The increase in amounts spent and purchase frequency prior to any redemption is driven by the motivation to attain the reward faster (Kivetz, Urminsky, and Zheng 2006), but the speed to attain large redemptions can hardly be influenced by increase in purchase amount or frequency (Bagchi and Li 2011). Additionally, increased spending and purchases after a redemption of loyalty points originates from the feeling of gratitude associated with the attainment (Steinhoff and Palmatier 2016), but such a feeling is not significant when the customer invests more effort and feels deserving of the reward. In short, strategic customers' redemptions are different from average customers, and firms risk financial losses or inefficiency in their loyalty programs without an in-depth understanding of strategic customers. As such, managers and scholars can benefit from further research into strategic customers' redemption behaviors.

Past studies on customers' redemptions primarily center around the theme of what makes a reward attractive to customers, focusing on customers' perceptions and cognitions (e.g., Kivetz and Simonson 2002; Kivetz, Urminsky, and Zheng 2006; Nunes and Drèze 2006; Stourm, Bradlow, and Fader 2015; Wang et al. 2016; Zhang and Breugelmans 2012). For example, Kivetz and Simonson (2002) showed that customers have a sense of guilt about luxury consumptions. As such the greater the effort required to obtain a reward, the more likely the customer is to favor a luxury reward, because a higher anticipated effort helps the customer to justify the selection of that luxury reward.

While these cognitive studies offer fruitful findings and shed light on the customers' preferences in making redemptions, the gap between preference and redemption remains largely under-explored in this context. Particularly, the redemption of points in a loyalty program is a

process that involves collecting enough points for the reward, and thus it is insufficient to use customers' temporary preference to explain the reward that they eventually redeem, because the influence of cognitive stimulus can hardly last throughout the redemption. Suppose that a customer initially selects a luxury reward that requires a lot of effort to obtain, attempting to use the effort invested to justify the selection. The customer can make sense of their luxury reward selection and adapt to the associated feeling of guilt (Wilson and Gilbert 2005) and their initial use of effort as justification becomes invalid, which may result in potential complaints about the effort required to obtain the reward and subsequently may trigger a change in the reward selection.

More importantly, perceptions and cognitions do not fully explain the underlying reasons for divergent choices (and behaviors) under the same stimulus. One stream of literature notes that customers are more likely to prefer luxurious or indulgent rewards because they can use the effort invested in the reward attainment as justification to ease their consumption guilt (Kivetz and Simonson 2002). However, this finding cannot answer why (or when) some customers have consumption guilt when attaining luxurious products, whereas other customers do not experience consumption guilt. In other words, these findings and theories from the perception and cognition perspective cannot describe individual differences. Particularly, we are interested in the differences between strategic and non-strategic customers in the redemption, which can hardly be explained by the argument that they are exposed to different cognitive stimuli. An investigation from the goal perspective can address both issues.

Regarding the issue about the effect, the influence of a goal is lasting, and redemptions can also be considered as the pursuit of a goal. Thus, customers' redemption behaviors (point collection and reward redemption) can be better delineated by a model from the goal theory perspective. Regarding individual differences, the goal perspective offers a holistic, in-depth view to explain

divergent behaviors under the same stimulus, allowing the differentiation between strategic and non-strategic customers.

In this sense, an understanding of customers' preferences does not fully explain observed redemption behaviors. There is sparse scientific literature investigating customers' redemption motivations and intentions in loyalty programs, and there is a gap in the literature which specifically addresses strategic customers in this arena. The theory of reasoned goal pursuit, described below, is helpful in examining customers' behaviors and their motivations in the use of loyalty programs. To address the existing gap in the literature, the aim of this study is to elucidate answers to the following two research questions:

- 1. How do customers form their intentions to redeem a reward in a loyalty program?*
- 2. How do strategic customers differ from non-strategic customers in the process?*

These research questions will meet the managerial challenge for businesses that wish to improve the strategic efficacy of their loyalty programs and to recognize the impact of strategic customers. Following is a model that delineates the formation of redemption intention adopting from the theory of reasoned goal pursuit. The discussion follows with an analysis of a working definition of strategic customers and their unique characteristics. Empirically, three experimental studies are conducted to validate the proposed model and the identified differences between strategic and non-strategic customers. Finally, the implications of this study for scholars and managers are discussed.

Theoretical Background

The Theory of Reasoned Goal Pursuit

To test the research question of how customers form their intentions to redeem a reward in a loyalty program, we model redemption behavior based on the Theory of Reasoned Goal Pursuit (TRGP; Ajzen and Kruglanski 2019). TRGP integrates the goal systems theory (Kruglanski et al. 2002) into the Theory of Planned Behavior (Ajzen 1991) and offers an extensive framework to explain reasoned behaviors. As Smith and Sparks (2009) noted, redemptions are mostly planned behavior⁸ and involve the process of goal pursuit, and thus TRGP can offer a solid theoretical base to model customers' redemption behaviors.

In the framework, Ajzen and Kruglanski contend that goal orientations⁹ are the central motivator of action and that a person performs a contemplated behavior to advance one or more of his or her currently active goal orientations. As a result, TRGP delineates three main phases of enacting a behavior: the formation of motivation, the translation from motivation to intention, and the implementation of intention.

In the formation of motivation, TRGP articulates that motivation to engage in a behavior is influenced by behavioral and normative beliefs. Behavioral beliefs include the evaluations of a behavior's potential outcomes (i.e., favorability) and the likelihood of these outcomes to happen

⁸ Admittedly, customers can make impulsive redemptions, just like impulsive purchases. The literature has identified that impulse buying can be related to customers' traits, motives, resources, and exposure to marketing stimuli (Iyer et al. 2020).

⁹ In Ajzen and Kruglanski's (2019) original article, "*goals constitute a state of affairs or an outcome that people desire to attain through their actions (p. 777)*", which are aligned with the focal goal in the goal hierarchy (Bagozzi and Dholakia 1999). However, other goal-relevant constructs in TRGP, such as motivation and intention, center around the behavior that serves active goals, and thus they are more consistent with the subordinate goal in the hierarchy. To avoid potential confusions, we use "goal orientation" to refer to the focal goal at a higher level in the goal hierarchy and "goal" to refer to the subordinate goal that serves the focal goal.

(i.e., probability). Normative beliefs include a person's belief about whether other people and society think the behavior should be performed (i.e., norms) and the influential impact of other people also referred to as "referents" whom we respect, admire and might be influenced by (Ajzen 1985). Consider, for example, a man forming his motivation to conduct a seven-day Keto diet. His motivation could be influenced by his behavioral beliefs about benefits and risks of a Keto diet and the likelihood of these outcome to happen (e.g., "likely to lose some weight" and "possibility of becoming constipated"). The person contemplating the Keto diet could also be impacted by normative beliefs about how other people think about Keto diets and the influential impact of referents such as partner who might recommend the diet, or a church mate who is against the diet.

More importantly, the influence of these beliefs is subject to their relevance to currently active goal orientations. Particularly, TRGP identifies two distinct goal orientations. Procurement goals are motivated by outcomes and benefits. Approval goals, on the other hand, are motivated by gaining the approval of personally significant social referents. It follows that currently active procurement goals impact certain beliefs about a behavior's outcomes that are relevant and influential in the formation of motivation to perform the behavior. Similarly, currently active approval goals impact certain normative beliefs that are relevant and influential. In the Keto-diet example above, the "weight losing" belief is not influential unless a person has the goal of staying healthy. Similarly, the "church mate's disapproval" belief is not influential when the person considering the Keto diet has no active religious goals.

Finally, it is argued in TRGP that active goals can impact behavioral and normative beliefs directly. Particularly, the authors argue that an active procurement goal could imbue the outcomes that represent the goals with higher subjective value, and that an active approval goal could

increase the importance of securing the approval of a given referent. Active goals can affect the strength of behavioral and normative beliefs, in the sense that active goals can increase perceived likelihood of goal-relevant outcome and strengthen perceived support from significant social referents. In the Keto diet example, a person is more likely to assign high value to the “weight losing” outcome, when he or she has an active goal of staying healthy. In short, currently active goal orientations can serve as both antecedents and moderators of behavioral and normative beliefs, which in turn constitute motivation to behave in a certain way.

In the translation from motivation to intention, TRGP considers the moderation effect of control beliefs. Control beliefs include one’s perceptions of non-volitional elements that facilitate or impede the performance of the behavior, such as the ability to perform an intended behavior, and the dependence on the actions of others (Ajzen 1985). Notably, Ajzen (2002) further clarified that control beliefs can be operationalized as an overarching construct consisting of self-efficacy and controllability. The former depicts difficulties in performing the behavior and the latter represents the extent to which performance is decided by the actor. Again, in the Keto diet case above, self-efficacy denotes how confident a person is to have all meals in Keto style regardless of difficulties that arise such as getting ill part way through the diet. Controllability is defined in this context as the extent to which a person can decide what to eat in each meal if they are relying on the delivery of Keto meal plans. While some research considers control beliefs as direct antecedents of intention (Ajzen 1991), it is argued that control beliefs should moderate the translation from motivation to intention (Ajzen and Kruglanski 2019).

In the implementation of intention, TRGP notes the moderation effect of actual behavioral controls or non-volitional factors that emerge in the conduct of the behavior. The implementation component is beyond the scope of this study.

In sum, the TRGP suggests that: (1) currently active procurement and approval goal orientations lead to the consideration of behavioral and normative beliefs about a behavior correspondingly; (2) behavioral and normative beliefs relevant to active goal orientations constitute the motivation to conduct the behavior; (3) the translation of motivation to intention is moderated by control beliefs; and (4) the implementation of behavior is moderated by actual behavioral control. Figure 1 offers the conceptual framework for TRGP.

-----Insert Figure 1 Here-----

Adapting TRGP to the Context of Reward Redemptions in Loyalty Programs

In the context of reward redemptions in loyalty programs, the focal behavior is *collecting and redeeming* points for a targeted reward. Point collection is an essential component of reward redemption because points (or the currency of the loyalty program) are the medium that the customer uses to exchange for rewards (Hsee et al. 2003). Past studies implicitly share the same assumption that customers must collect points for their redemptions. For example, Taylor and Neslin (2005) noted a “point pressure” mechanism whereby customers increase their purchase in an effort to earn a reward. Similarly, Kivetz and Simonson (2002) argued that the customers can use their effort in earning points to justify their luxurious redemptions. Finally, Smith and Spark (2009) observed that members of the loyalty program are motivated to “accumulate points or value to save up for a large purchase or reward” (p. 544). In this sense, redeeming a reward is not merely selecting a reward but also includes the process of collecting enough points for the reward.

In addition, customers in reward redemptions have two primary goal orientations: reward attainment and symbolic consumption (Smith and Sparks 2009). Reward attainment refers to the pursuit of the reward’s value. Particularly, customers can obtain two types of value from the

redemption – monetary savings and exploration (Mimouni-Chaabane and Volle 2010). Monetary savings are perhaps the most fundamental benefit offered by the loyalty program, because the concept of a loyalty program is developed from offering incentives like cash-back and coupons to reward frequent buyers and to encourage their retention and loyalty (Dowling and Uncles 1997). Rewards in loyalty programs still offer monetary savings in the form of either free product or price discounts. Customers also fulfil their exploratory desire to try new products and enjoy unique experience through reward redemptions. Redeemed rewards are often considered as windfalls or hard-earned rewards (Smith and Sparks 2009), both of which promote obtaining more extraordinary and unique products that are difficult to justify in ordinary spending (Kivetz and Zheng 2006).

Symbolic consumption refers to the focus on the symbolic meaning of redeeming and consuming the reward, which often occurs in luxurious, indulgent, distinctive, or special redemptions. Specifically, customers use reward redemptions to express their identity and affiliation with their referent groups. It has been widely recognized that products often represent more than their simple utility, and consumers can use product purchase, possession and consumption as a means of self-expression (Banister and Hogg 2004; Belk 1988; Grewal, Stephen, and Coleman 2019; Thomsen and Sørensen 2006). For example, people consume luxury products to reinforce (differentiate) their status in society (Han, Nunes, and Drèze 2010), while consumers might buy brands to signal association with wanted groups (Kirmani 2009). Therefore, the redemption and consumption of a reward can signal the distinction and/or association of the self, which is particularly relevant when customers consider a luxurious, indulgent, distinctive, or special redemption. As noted in the literature, luxury consumption is a strong signal of social status, and thus it is often used by customers to express their (dis)association with other customers (Han,

Nunes, and Drèze 2010). With the redemption of luxurious rewards, customers consume luxurious products or services that might be more expensive than normally afforded. Luxurious rewards can also signal both the association with a group which the customer does not belong to, and/or the disassociation from a group that the customer belongs to. As a result, the customer might focus on the social meanings conveyed by the reward redemption, particularly when the redemption is luxurious, indulgent, or distinctive.

Redemptions of ordinary (non-luxury) rewards can have symbolic meaning attached by customers, which can be used to communicate with the self about the (dis)association (Mick and Demoss 1990; Smith and Sparks 2009). For example, a graduating student can redeem a suitcase to signal the dissociation from the student group, and such a symbolic meaning is attached to the suitcase personally.

Notably, reward attainment reflects the procurement goal orientation, whereas symbolic consumption corresponds to the approval goal orientation. As Ajzen and Kruglanski (2019) noted, procurement goals are focused on outcomes and consequences of the contemplated behavior, and the reward's value is the most direct measure of the consequence of redeeming a reward. On the other hand, approval goals are attempts to gain or maintain social (or significant referents') approval, which reflects the customer's motivation to (dis)associate with the referent group. Based on the discussion above, symbolic consumptions are a means of attaining approval goals because their primary aim is aligned with the underlying motivation of approval goals.

With the focal behavior and relevant goals identified, we now examine relevant beliefs in reward redemptions. Reward attainment leads to the consideration of the perceived value of the reward and the expectancy of the value, jointly constituting behavioral beliefs. On one hand, the

perceived value of the redeemed reward directly determines the outcome of the reward redemption, and thus it serves as a good proxy for the favorability of the outcome. It is well established that perceived value has multiple facets including monetary, functional, emotional, and social aspects (Sweeney and Soutar 2001). Rewards in loyalty programs offer utilitarian and hedonic value including monetary savings and exploration in addition to other value provided by the program (Mimouni-Chaabane and Volle 2010).

Customers might have uncertainty about the expected value of a reward. Uncertainties can arise over time from the potential for increased cost to obtain a reward or the reduced benefit of the reward. While most loyalty program policies remain consistent over time, loyalty programs have the potential to raise the requirements for rewards, reduce points awarded, or allow points to expire (McCall and McMahon 2016). Such risks result in an increased cost for consumers. These changes become more likely and more salient to the customer when the reward requires more effort, which means a longer time to collect required points.

It is also possible that customers underestimate the time and effort needed to obtain a reward, because they tend to be either optimistic about their future progress (Buehler, Griffin, and Ross 1994), or underestimate the future effort required (Soman 1998). Further, the realized benefit of the reward might not be as much as expected, and there are several reasons. First, the rewards redeemed in a loyalty program are mostly exploratory or unfamiliar to the customer and might not be as expected (Mimouni-Chaabane and Volle 2010; Smith and Sparks 2009). Second, unexpected issues might emerge including delays in receiving rewards, or unexpected decrease in value of expected rewards. For example, customers might experience loss of benefits in loyalty programs as a result of the covid-19 pandemic. Customers might suffer disappointment in hedonic rewards due to a tendency to overestimate the intensity and the duration of an emotional

impact of a future event (Wilson and Gilbert 2005). In sum, various uncertainties about the reward's cost and benefit can lead to the variations in its value expectancy.

Symbolic consumption activates the consideration of perceived norms in redemptions and the importance of the referents, jointly constituting normative beliefs. On one hand, perceived norms in reward redemptions are composed of descriptive and injunctive norms (Cialdini and Trost 1998). Particularly, descriptive norms mean the “perceived prevalence or typicality of a given behavior”, and injunctive norms refer to the “perceived degree of social approval/disapproval for the behavior” (Jacobson, Mortensen, and Cialdini 2011, p. 434). In the context of redemptions, descriptive norms stand for the common practice of redemptions (e.g., “what others in the group redeem”), and injunctive norms depict the appropriateness of the reward selection (e.g., “whether others in the group accept redeeming a luxury bag”). The importance of the referents, on the other hand, denotes the tendency for the individual to conform to perceived norms. In redemptions, the customer might be exposed to contradicting norms from different referents: the community of point collectors advocates redeeming the “best value” reward, while family members favor tangible rewards like an immediate discount. The importance of the referents determines which norm will be adopted by the customer (Ajzen and Kruglanski 2019).

Control beliefs, as suggested by Ajzen (2002), are operationalized as self-efficacy and controllability. Specifically, self-efficacy represents the customer's confidence in overcoming difficulties in the redemption, and controllability refers to the extent to which these difficulties are in the customer's control. Difficulties in redemptions can be external and internal, including difficulties in the point collection and in the reward redemption. First, customers might have difficulties in collecting enough points for the desired rewards in a reasonable timeframe. For example, it will take most airline customers many years to earn enough points for a free airline

ticket by just flying (O'Brien and Jones 1995). Moreover, the customer might not be able to redeem the desired reward even after collecting enough points due to external and internal factors. For example, it was observed in extant literature that there is limited inventory of airline seats that can be awarded in a rewards programs (de Boer and Gudmundsson 2012). Finally, the customer might not have the flexibility in adapting their behaviors to obtain the reward (Breugelmans and Liu-Thompkins 2017). For example, full-time employees might have limited flexibility to travel abroad. In short, the customer might have concerns about redeeming a free trip due to limited availability and inflexible schedules. Control beliefs moderate the formation of intention when customers assess these difficulties in their pursuit of desired rewards.

Combined, we offer a theoretical model based on the TRGP framework for the formation of redemption motivations and their translation to intention as follows:

Reward redemptions are oriented by (a) a reward attainment goal, (b) a symbolic consumption goal, (c) or a mix of both. In this sense, the motivation of redemption is formed by factors related to

- (i) reward attainment, such as the perceived value of the reward and its expectancy,
- (ii) by factors related to symbolic consumption, such as perceived norms in redemptions and the importance of referents, or
- (iii) by both types of factors depending on which goal(s) is(are) activated.

The translation from motivation to intention is moderated by both the customer's confidence in overcoming difficulties in the redemption, and the extent to which these difficulties are in the customer's control. The model is conceptualized in Figure 2.

-----Insert Figure 2 Here-----

We propose the following hypotheses to test the model¹⁰:

H1: Behavioral beliefs, composed of (a) the perceived value of the reward and (b) the expectancy of obtaining the reward's value, positively impact the formation of the motivation to redeem a reward.

H2: Normative beliefs, composed of (a) perceived norms in the redemption and (b) the tendency to conform to perceived norms, positively impact the formation of the motivation to redeem a reward.

H3: The intention to pursue (i.e., collect points and redeem) a reward is positively determined by the motivation to redeem the reward.

H4: The translation from motivation to intention is impacted (moderated) by both (a) the self-efficacy and (b) the perceived controllability of the redemption.

Strategic vs. Non-Strategic Customers

Following is a review of the literature that frames a definition of “strategic customers”. The concept of strategic customers originates from the literature on dynamic pricing. In dynamic pricing model, the behavior of strategic customers was incorporated as an extra constraint in the classic newsvendor model, wherein a portion of customers are allowed to choose to buy a product at the regular price or wait for the salvage price (Cachon and Swinney 2009; Levin, McGill, and Nediak 2009; Su and Zhang 2008). These customers are strategic and forward-looking as they can assess future possible valuations and prices and aim to maximize some measure of utility for the purchase (Levin, McGill, and Nediak 2009). Li et al. (2014) offered an estimate of the size of the market of strategic customers in the air-travel industry, who attempt to maximize long-run utility by timing their purchases to obtain lower prices. Additionally, Lobel et al. (2015) examined firms’ product launch strategies with the presence of strategic customers, who anticipate the introduction

¹⁰ We did not have hypothesis on customers’ active goals, because the behavioral and normative beliefs are particularly selected based on these two goals, and thus the impact of the beliefs reflects customers’ active goal.

of future generations of a product when considering purchasing the current version on the market. Finally, Chun and Ovchinnikov (2019) analyzed a company's choice of various loyalty program designs considering the influences of strategic customers. Taken together, extant literature states that:

- a) Strategic customers attempt to *maximize* utility derived from the transaction;
- b) Strategic customers adopt a *holistic* view to see events occurring at different time horizons as interconnected; and consequently,
- c) Strategic customers delay the purchase when expecting that buying in the future offers greater intertemporal utility.

Thus, we classify customers making redemptions by two dimensions: utility objective and time perspective. Customers can be categorized by whether they seek the maximal utility ("maximizers") or a balance between utility and effort ("satisficers"). One stream of literature has recognized that people differ in their focus when making selections, especially when there are many options. Maximizers attempt to achieve the maximal utility, while satisficers settle for the "good enough" option (Schwartz et al. 2002). Luan and Li (2017) further revealed that maximizers and satisficers are not different in their pursuit of utility, but in their focus on the effort required to achieve the utility. Particularly, maximizers focus only on the goal of utility maximization, and thus they increase their effort in choice-making as much as necessary. On the contrary, satisficers pursue the goal of effort minimization besides utility maximization, and thus their choice is, to some extent, a compromise between the desirability and the feasibility of an option. For example, in their study, Luan and Li (2017) showed that student participants are indifferent in their ratings of the importance of the course desirability criteria regardless of their tendency to maximize, but that satisficers, who have a lower tendency to maximize, rated the course feasibility criteria as

more important. In this sense, strategic and non-strategic customers can be differentiated by whether they attempt to minimize or maximize the effort in the pursuit of utility.

Customers can also be categorized by whether they can see events that occur in different time horizons as interrelated (holistic thinkers) or separated (analytical thinkers). Nisbett et al. (2001) described the socio-cultural differences in how individuals view the world. Particularly, some (e.g., East Asians) hold a holistic assumption that every element in the world is somehow interconnected, while others (e.g., European North Americans) take an analytic view that the universe is composed of independent objects. Choi et al. (2007) identified that one of the key differences between holistic and analytical thinkers is in their attention allocation: holistic thinkers tend to pay more attention to relationships between objects and their context, but analytical thinkers focus more on an object in separation from the field to which it belongs. It follows that holistic thinkers are more likely to make associations and see the “whole picture” than analytical thinkers.

Further, the tendency to make associations influences how people see events occurring in the past, the present, and the future. Particularly, Ji et al. (2019) concluded that holistic thinkers, compared to analytical thinkers, are more likely to see events in the past as relevant to present events and to link present events to future consequences, because of their stronger tendency to associate these events. Consequently, their study showed that holistic thinkers perceive greater self-continuity over time, which denotes the ability to see oneself as a unified entity across one’s past, present, and future. Moreover, Maddux and Yuki (2006) showed that holistic thinkers expect a single pool shot to have a greater impact on distal events like the overall outcome of the game because they are more aware of the indirect, distal consequence of the event than analytical thinkers do. In sum, strategic and non-strategic customers can be categorized based on their

dominant cognitive styles (holistic vs. analytic), reflecting their tendency to consider events occurring at different time horizons as interrelated.

Based on these two identified dimensions, we define strategic customers in the context of loyalty program redemptions as those who attempt to maximize the utility derived from the redemption (maximizers) *and* have strong capability to associate redemptions occurring at different time horizons (holistic thinkers). We consider non-strategic customers are opposite in both dimensions for contrast, and thus they seek a balance between utility received and effort required in the redemption (satisficers) *and* are likely to treat redemptions occurring at different time horizons as separated (analytical thinkers). In addition, we call those who are both maximizers and analytical thinkers as short-sighted customers and those who are both satisficers and holistic thinkers as indifferent customers.

Figure 3 illustrates the categorization of customers in redemptions. Below, we discuss what and how these two dimensions in the strategic customer's definition results in the difference between strategic and non-strategic customers.

-----Insert Figure 3 Here-----

Strategic Customers as Maximizers

In the context of reward redemption, it is not rare that customers must make decisions about *which* reward to pursue from a long list of alternatives, especially in coalition loyalty programs, and thus customers could differ in how they make the choice. Specifically, strategic customers, as maximizers, pursue maximal value from the reward, including the value of both monetary savings and exploration, while non-strategic customers, as satisficers, seek the balance between the effort

invested in the point collection and the value received from the reward redemption. Such a difference could lead to variations in the formation of these customers' redemption motivation.

Intuitively, maximizers could rely more on behavioral beliefs to form their motivation because their attempts to maximize utility should lead to a greater focus on the procurement goal of reward attainment, which in turn would enhance the impact of behavioral beliefs. However, this is not the case. As discussed above, satisficers and maximizers are not different in their pursuit of utility maximization but in their pursuit of effort minimization. Yet, the value of the reward is “the overall assessment of the utility of a product (or service) based on perceptions of what is received and what is given” (Zeithaml 1988, p. 14), and thus customers have adjusted their value perception of the reward according to both the utility and effort to obtain the reward (i.e., its desirability and feasibility). Thus, strategic and non-strategic customers are not different in how their redemption motivations are influenced by behavioral beliefs, but rather how their value perceptions are determined. Maximizers are influenced primarily by the utility of obtaining the reward (i.e., the reward's desirability), while satisficers' are influenced by both the utility of and the effort spent in obtaining the reward (i.e., both the reward's desirability and feasibility). In sum, we argue that strategic and non-strategic customers' redemption motivations are indifferently influenced by their behavioral beliefs.

We argue that strategic customers' redemption motivations are more influenced by their normative beliefs, because these customers attempt to achieve the distinction from their peers via the pursuit of “the best” option. Past studies recognized that maximizers care more about comparative advantages (Luan and Li 2019; Schwartz et al. 2002; Weaver et al. 2015). Specifically, Schwartz et al. (2002) argued that maximizers' pursuit of the “best” reward is rooted in social comparison information, in the sense that their comparing standards for “the best” are derived from

others' performance. The indicative literature showed that maximizers are more interested in and sensitive to their relative standing with their peers than satisficers are. Weaver et al. (2015) elaborated on this point and revealed that maximizers focus on comparative outcomes more than absolute outcomes, to the extent that they might even sacrifice objective quality for social standing. For example, maximizers are more willing to consume fake products that have the outside appearance of prestige goods. Finally, Luan and Li (2019) showed that maximizers are more willing to put effort in finding the best (i.e., behaving like maximizers) in a public context, but maximizers no longer expend more effort than satisficers do in a private context. In short, these streams of literature lead to the conclusion that maximizers' pursuit of "the best" option is to perform better than their peers. Following this logic, we expect that strategic customers have a stronger symbolic consumption goal in their redemptions, because they attempt to use "superior redemptions" to disassociate from the referent group. It follows that strategic customers are more interested in, and sensitive to, the social meaning of the reward and that they are more influenced by normative beliefs, compared to non-strategic customers. Therefore, we posit that:

H5a: Strategic customers' (vs non-strategic customers) redemption motivations are more likely to be influenced by normative beliefs because they care more about their relative standing with their peers.

H5b: Strategic customers' (vs non-strategic customers) redemption motivations are equally likely to be influenced by behavioral beliefs.

Strategic Customers as Holistic Thinkers

As holistic thinkers, strategic customers are more likely to associate events and objects and thus make intertemporal decisions in a holistic way, compared to non-strategic customers who are analytical thinkers. The literature has acknowledged the link between thinking style and construal level, by connecting the holistic, global processing with the abstract, high-level construal and the

analytic, local processing with the concrete, low-level construal (Liberman and Förster 2009). Also, it is well documented that events and objects in greater psychological distance, including distant future, are more likely to activate the abstract, high-level construal (Trope and Liberman 2003, 2010). In other words, events in distant future have a better fit with the abstract construal and thus a better fit with holistic processing. Therefore, holistic thinkers can associate events and objects that occur at more distant future than analytic thinkers.

Because of their tendency to associate different objects and/or events, holistic thinkers are more influenced by their efficacy beliefs about redemptions. Particularly, expectation of one's efficacy are built upon mastery experience, vicarious experience, received verbal persuasion, and emotion arousal (Bandura 1977). In this sense, the strength of the efficacy belief about reward redemption can be influenced by the customer's experience and his or her observations of other's experience. For example, learning a story about another person's success in redeeming a free trip to Hawaii can enhance one's efficacy to achieve similar redemptions in the same program. Yet, the influence of experience depends on its relevance to the behavior and the actor. In the above example of a free trip to Hawaii, a person's efficacy might not be strengthened much if the person wants to redeem a laptop and sees limited similarities between these two redemptions. Similarly, one can hardly feel more confident in reward redemption if a person learns the experience of a travel blogger who can accumulate numerous points easily. Because of their tendency to make associations, holistic thinkers could consider more (self or others') experience as relevant to the focal redemption and thus receives more influences from their efficacy beliefs, compared to analytical thinkers.

On the other hand, analytical thinkers tend to consider things separately, which allows them to avoid unrealistic optimism linked with perceived controllability, so that they are less influenced

by their controllability beliefs. It has been well established that perceived controllability has a strong link to unrealistic optimism (Harris 1996; Klein and Helweg-Larsen 2002), which is the belief of having higher likelihood of experiencing desirable future outcomes (Weinstein 1980). In describing unrealistic optimism, perceived controllability increases perceived likelihood of behavioral achievement and thus enhances the translation from motivation to intention (Ajzen 1991; Ajzen and Kruglanski 2019). The effect of unrealistic optimism linked with perceived controllability is built upon the assumption that one believes his or her ability to take proper actions to influence future events (Weinstein 1980), which requires making connections between events occurring at different time. As discussed earlier, analytical thinkers are not likely to make such connections, and thus they are less influenced by unrealistic optimism and in turn by perceived controllability. Proposed differences are illustrated in Figure 4. In short, we posit that:

H6a: Strategic customers (vs non-strategic customers) are more likely to be influenced by perceived self-efficacy in the translation from motivation to intention, because their holistic view increases the relevance of the information to the focal behavior.

H6b: Strategic customers (vs non-strategic customers) are more likely to be influenced by controllability in the translation from motivation to intention, because their holistic view increases the relevance of the information to the focal behavior.

-----Insert Figure 4 Here-----

Methodology

In this section, we conduct three experimental studies to validate the proposed model and distinctions between strategic and non-strategic customers. First, we develop a scenario where participants must select immediate or delayed rewards to pursue in a hypothetical loyalty program, and in the first study we measure their behavioral, normative, and control beliefs to validate the proposed model (H1-H4). We also compare the proposed model to other alternatives to show its superiority. Next, we validate proposed differences between strategic and non-strategic customers

by examining their divergent patterns in the established model. Particularly, in the first study, we compare those who score high at both measures of maximization tendency and holistic thinking to those low at both, offering initial support for the differences between strategic and non-strategic customers. In the second and third study, we attempt to isolate the impact of each personality trait by manipulation, and then we examine how participants' responses differ in the established model. Particularly, we manipulate participants' maximization tendency by priming the dominant mindset and their utilization of maximization goal by varying consumption context in the second study. Similarly, we manipulate participants' thinking style by priming the dominant mindset and their utilization of the ability of association by varying the relevance of others' experience in the third study. In this way, we can illustrate what and how each personality trait contributes to differences between strategic and non-strategic customers in the established model (H5-H6).

Study 1

This study attempts to validate a proposed framework for customers making redemptions in loyalty programs and to provide initial evidence for differences between strategic and non-strategic customers. Particularly, we use a two-stage hypothetical scenario where participants must decide between two types of rewards to pursue (i.e., collect and redeem points) in a new loyalty program. In addition, we compare participants' differences in their personality of maximizing tendency and thinking style to illustrate how strategic customers form their motivation and intention differently from non-strategic customers.

Design and Methods

Because of its goal, this study did not specifically attempt to examine interactions among different beliefs (i.e., among behavioral, normative, and control beliefs), and thus the study is a 4-

condition, between-subject experiment for pragmatic reasons. Particularly, we synchronized the conditions of favorability, perceived norm, and self-efficacy, and the conditions of expectancy, conformity, and controllability. That is, the condition (high or low) of favorability, perceived norm, and self-efficacy is always consistent (i.e., high in all three or low in all three). Similarly, the condition of expectancy, conformity, and controllability is always the same (i.e., high in all three or low in all three). This approach allows us to cover all combinations within each type of beliefs without an excessively complex 64-condition design (e.g., Raajpoot and Sharma 2006).

The study utilizes a hypothetical scenario about a grocery loyalty program that offers two distinct types of rewards – DREAM and CASH rewards. As their names indicate, DREAM reward is free travel product such as air tickets, and CASH reward is monetary discount for spending in the grocery store. To push participants to make the tradeoff, we set the rule that points collected for one type of reward cannot be redeemed in the other. Such a rule also exists in business practice, such as in the Air Miles program in Canada. The study has two separate scenario descriptions, and participants respond to corresponding measurement items right after reading each scenario.

In the first scenario, participants are assigned to differing sets of conditions based on details about two types of rewards. Participants are given information about perceived value, expectancy, norms, and conformity. Specifically, subjects in the “high-high” (“low-low”) condition will learn (1, value) that the value of a DREAM reward, free air tickets to Hawaii, is \$1,000 (\$500); (2, expectancy) that such a value estimate is reliable (unreliable); (3, norms) that it is recommended to allocate 70% earned points to DREAM (CASH) rewards; and (4, conformity) that the source of such a recommendation is one of the best friend (an unknown online blog). After reading all these descriptions, participants immediately rate items measuring their motivation, value perception, value expectancy, norm perception, and conformity tendency.

The second scenario follows measurement items used in the first scenario. Participants are introduced to non-volitional factors in the reward redemption. Like the case in the first scenario, information about efficacy and controllability of the redemption is provided differently based on the assigned condition. Specifically, subjects in the “high-high” (“low-low”) condition will learn (1, efficacy) that their spending in this grocery store is stable (instable) for a DREAM reward redemption in one year; and (2, controllability) that their request for a vacation to use the redeemed DREAM reward is likely (unlikely) to be approved by their supervisor. Again, participants rate corresponding measurement items right after the scenario. Finally, participants respond to items that measure their maximizing tendency and thinking style before completing the study.

We adopt such a two-scenario study primarily to disentangle customers’ motivation from their intention regarding reward redemptions. While it is useful to distinguish the two in the Ajzen and Kruglanski’s (2019) model, the constructs are difficult to distinguish empirically. In fact, the earlier model of TRGP (the theory of planned behavior; Ajzen 1991), treated the motivation and intention as the same construct. Moreover, from earlier theoretical discussion, we consider that the motivation constituted by behavioral and normative beliefs is about *conducting the focal behavior* (different from the motivation to *pursue activated focal goal*), which has very limited difference from the intention to conduct the behavior.

As a result, we separate the motivation formation stage (i.e., the first scenario) from the intention formation stage (i.e., the combination of the first and the second scenario) in this study, allowing us to achieve stronger discriminant validity in the measurements of both constructs. Admittedly, this operationalization potentially leads to biased estimates for the impact weights on intention due to the recency effect (Kahneman et al. 1982), in the sense that factors introduced in

the second scenario could be more accessible, receive more attention, and become more influential when participants indicate their intention.

Items used to measure constructs in the proposed model are provided in Appendix 1. In the study, we adopt and adapt measurement items used by past studies. Specifically, items to measure perceived value of the reward are a subset of the scale established by Mimouni-Chaabane and Volle (2010), which measures the monetary and exploration value of the reward. Items for expectancy are adapted from Devilly and Borkover's (2000) work for therapy evaluation, and we modified the wording to adapt to the context of loyalty program. Items for perceived norms are adapted from past studies on green consumptions (Culiberg and Elgaaied-Gambier 2016; Minton and Rose 1997), and we also made changes to fit the context. Items for conformity are a subset of the established scale of susceptibility to interpersonal influence (Bearden, Netemeyer, and Teel 1989), which measures the susceptibility to value-expressive influence (Mourali, Laroche, and Pons 2005) in line with the goal of symbolic consumption. Items for efficacy and controllability are adapted from Ajzen's (1991) summary of popular items used by past studies. Motivation and intention are adapted from Shneor and Munim's (2019) measurements of the same constructs in the crowdfunding contribution context. Finally, we used the shortened scale for maximization (Nenkov et al. 2008; Schwartz et al. 2002) to measure participant's tendency to maximize, and we used a shortened attention subset (Hossain 2018) in the scale for analytic-holistic thinking style (Choi, Koo, and Choi 2007) to determine the dominant thinking style of the participant.

Results

We recruited participants from Amazon Mechanical Turk (Mturk) platform, and they received monetary compensation for the successful completion of the study. To ensure the data quality, we implemented multiple attention check questions, such as post-scenario fact checks (i.e.,

identifying the wrong statement based on the scenario description) and regular attention checkers (e.g., a statement read “I am picking random answer now” inserted in agree-disagree matrix question). The study attracted 1152 attempts from Mturk workers, and 452 successfully completed the whole study.

Confirmatory Factor Analysis

We first conduct a confirmatory factor analysis to examine our measurement items for each construct. Notably, we considered second-order constructs for behavioral and normative beliefs, which are composed of perceived value and its expectancy and of perceived norms and conformity correspondingly. The model fit indicates proposed constructs are well measured by corresponding items ($\chi^2/df = 1.783$; CFI = .922; NFI = .840; RMSEA = .055). Next, reliability of all constructs is well above the .7 threshold, average variance extracted (AVE) of all constructs is above the .5 threshold, and all AVE is larger than maximum shared variance (MSV). These results suggest that the established constructs have good reliability, convergent validity, and discriminant validity (Table 1). Finally, we examined the common method bias in two ways. We first conducted the Harman’s single factor test, and the one-factor in the exploratory factor analysis accounts for 43.22% of the total variance, suggesting that common method bias might not be a concern (Harman 1976). We also used the common latent factor test to examine the common method bias. Particularly, we compare the standardized regression weights of a model with a common latent factor included to those in the model without the common latent factor, and none of the weights differ significantly (i.e., more than .2) (Podsakoff et al. 2003). In this way, we can conclude that the common method bias is not a major concern in the model.

-----Insert Table 1 Here-----

Path Model

We create orthogonalized interaction terms for the moderation effect of self-efficacy and controllability following Little et al.'s (2006) approach. This approach is considered to offer more accurate estimates for the interaction term as well as its impact, and thus it is recommended in most cases (Henseler and Chin 2010). Specifically, the interaction term is measured by all residual terms (e_{ij}) derived from regressing the product of each pair of measurement items for interacting constructs ($p_{ij} = x_i \cdot m_j$) on all measurement items for both constructs (x_1 to x_i and m_1 to m_j). For example, the first residual term (e_{11}) is derived by $p_{11} = b_{0,11} + b_{1,11}x_1 + \dots + b_{i,11}x_i + b_{i+1,11}m_1 + \dots + b_{i+j,11}m_j + e_{11}$.

We then fit the data to the proposed model, and the model fit suggests that the model explains the data well ($\chi^2/df = 2.584$; CFI = .898; NFI = .826; RMSEA =.050). Moreover, all path estimates are significant at the .001 level, validating the proposed model for motivation formation and its translation to intention (Figure 5). In addition, we compare the proposed model to an alternative model based on the theory of planned behavior (Ajzen 1991), where behavioral, normative, and control beliefs all have direct impacts on intention (see Figure 6). The alternative model has a worse fit than our proposed model does ($\chi^2/df = 5.183$; CFI = .734; NFI = .690; RMSEA =.096). Also, the chi-square comparison confirms that the proposed model is better than the alternative ($\Delta\chi^2 = 595.00$, $\Delta df = 3$, $p < .05$).

-----Insert Figure 5 and 6 Here-----

Path estimates of proposed model confirm our hypotheses about customers' motivation and intention formation in the reward redemption (H1-H4). Particularly, while both are significant in the positive direction, behavioral beliefs have a stronger impact on motivation than normative

beliefs do ($\beta = .68$ vs. $.46$ respectively). Similarly, both being positive, controllability has stronger influence on intention than self-efficacy does ($\beta = .61$ and $.24$ vs. $.61$ and $-.18$ respectively). Finally, both moderation effects are stronger than their main effects ($\beta = .61$ and $.61$ vs. $.24$ and $-.18$ respectively), confirming that both efficacy and controllability are more of moderators than antecedents on the formation of intention.

Subgroup Comparisons

We finally attempt to compare how strategic and non-strategic customers behave in the proposed model using subgroup comparisons. Particularly, we calculate each participant's factor scores on both maximization tendency and thinking style by confirmatory factor analysis, and we then use the mean split to dichotomize participants into high and low groups in these two traits. We consider 152 participants in the "high-high" group as strategic customers and 149 in the "low-low" group as non-strategic customers.

We simultaneously fit the data from each subgroup into two separate, unconstrained models, which serve as our benchmark for comparison. We then examine the difference in each pair of path estimates by comparing a model that constrains the path to be equal in two subgroup models to the benchmark. The chi-square difference between the constrained and the unconstrained model indicates whether the path has different estimates in two subgroups. Table 2 provides results of path estimates in two unconstrained model and the chi-square test between the constrained and the unconstrained model on each examined link (combinations).

-----Insert Table 2 Here-----

The subgroup comparison results support our hypotheses about differences between strategic and non-strategic customers (H5 and H6). Particularly, strategic customers are more motivated by normative beliefs (H5a) but not by behavioral beliefs (H5b), compared to non-

strategic customers ($\beta = .85$ vs. $.37$ and $.70$ vs. $.67$, $\Delta\chi^2 = 6.876$ and 1.174 , both $\Delta df = 1$, $p < .05$ and $> .1$). Similarly, the intention of strategic customers is more influenced by both the moderation of efficacy (H6a) and controllability (H6b) ($\beta = .54$ vs. $.20$ and $.71$ vs. $.54$, $\Delta\chi^2 = 7.894$ and 5.487 , both $\Delta df = 1$, $p < .001$ and $.05$ respectively). In addition, the impact of motivation to intention differs between strategic and non-strategic customers ($\beta = .47$ vs. $.13$, $\Delta\chi^2 = 5.484$, $\Delta df = 1$, $p < .05$).

Discussion

In this study, we first validate the proposed model for customers' motivation formation and its translation to intention in reward redemption via an experimental study. Results showed that behavioral beliefs and normative beliefs jointly constitute customers' motivation for reward redemption, supporting H1 and H2. Also, results showed that the translation to intention is influenced by customers' self-efficacy and controllability directly and indirectly, supporting H3 and H4. In addition, we also found that moderation effects of both self-efficacy and controllability are stronger than their main effects, which is aligned with the TRGP model (Ajzen and Kruglanski 2019). However, we observed a relatively low impact of motivation on intention, which could be a result of our two-scenario experimental design (i.e., recency effect).

Moreover, we illustrate how strategic and non-strategic customers behave differently using subgroup comparisons. The results of subgroup comparisons offer direct support to our hypotheses. As predicted, the formation of motivation is more influenced by normative beliefs (H5a) but not by behavioral beliefs (H5b) in strategic customers, and the translation to intention is more impacted by moderation effects of both efficacy (H6a) and controllability (H6b) in strategic customers. In addition, strategic customers also show a stronger connection between motivation and intention, which implies these customers are more determined in their pursuit of the reward. Yet, as a caveat

similar to the point above, we cannot conclude whether such a difference is related to the design of our study.

Despite these findings, there is no direct evidence for how strategic customers differ from non-strategic customers. Specifically, the use of mean split to categorize strategic and non-strategic customers is highly subject to how participants in this sample are distributed in these two personality traits. If the sample is skewed, say most participants are maximizer (which is likely as Mturk workers), the conclusion drawn from such mean split might be biased. As such, we attempt to manipulate participants' mindset and thinking style in the following two studies to address this issue.

Study 2

This study attempts to examine the impact of the maximization mindset on the formation of motivation to redeem a reward. Specifically, this study manipulates participants' dominant mindset and contrasts its influence between public and private consumptions. Despite the fact that maximizers were initially considered as an individual difference in decision making, later studies found that it is also a mindset that could be manipulated by priming (Levav, Reinholtz, and Lin 2012; Ma and Roesse 2014). The manipulation has been used by many recent studies in the investigation of the impact of such an individual difference (e.g., Goldsmith, Roux, and Ma 2018; Luan and Li 2019; Mao 2016), and thus we use the priming manipulation to investigate differences between strategic and non-strategic customers in the utility objective dimension. On the other hand, the contrast between public and private consumption validates our argument about the differential impact of two mindsets. As noted, maximizers are more interested in comparative advantage than satisfiers (Weaver et al. 2015), and thus strategic customers are more driven by the goal of

symbolic consumption to disassociate from their peers. Such a symbolic goal, like other social comparison goals, becomes less influential in private consumption (Luan and Li 2019). In this sense, by contrasting between public and private consumption contexts, we can illustrate how the maximization mindset influences the formation of reward redemption motivation.

Design and Methods

The study uses a 2 (mindset: maximizers vs satisficers) x 2 (consumption context: public vs. private) between subject design. The setup of this study is a shortened version of Study 1. Specifically, the study starts with a task that attempts to manipulate participants' mindset to maximize and is followed by the first scenario used in Study 1. Participants complete the study after responding to corresponding items. In other words, we only assess the customers' motivation formation phase in the study.

Study 2 employs the Ma and Roese (2014) manipulation task that is widely adopted to alter subjects' dominant mindset (Goldsmith, Roux & Ma, 2018; Luan & Li, 2019; Mao, 2016). Particularly, in this task, participants are required to answer five questions all of which ask about the best among the choice (the 'maximizers' condition) or the choice(s) acceptable to the participant (the 'satisficers' condition). For example, participants in the maximizer condition will indicate which university of the following offers the best education (Harvard; Yale; Princeton; UPenn; and Columbia). Those in the satisficers condition indicate the university (universities) that they think offers education that they are satisfied with from the same list. Questions are selected from the list offered by Ma and Roese (2014), including university, job, pet, singer, and place to visit. On the other hand, we manipulate the condition of the consumption context by informing participants that the reward selection will be shared with company colleagues (the public condition) or their spouse (the private condition).

Finally, we use items identical to those in Study 1 measuring participants' motivation, reward value, value expectancy, perceived norms, and conformity tendency. In addition to these items, we measure the maximization tendency using the shortened scale of maximizing (Nenkov et al. 2008). We also use a 7-point Likert scale to measure the visibility of the reward: To what extent will your reward be seen by others, with 1 being almost nobody and 7 indicating that everyone will see it. Both will serve as manipulation checks.

Results

Like Study 1, participants are recruited from Amazon Mturk platform, and 312 out of 836 respondents completed the study. To ensure that participants are following the instruction in the priming task, we insert an attention check question that randomly appears in the middle of the task. This question requests participants to choose (only) the fourth choice from right to left regardless of what the question asks. Yet, to make this attention check fair, such an instruction is provided at the bottom of the pseudo question.

We first fit the data into sub-model that describes the formation of motivation. The model fit indicates that the model explains the data adequately ($\chi^2/df = 2.050$; CFI = .905; NFI = .832; RMSEA = .062). Moreover, all path estimates are significant at the .001 level, and the estimates are consistent with those in Study 1. Figure 7 illustrates the result of this model.

-----Insert Figure 7 Here-----

We next turn to the subgroup comparison, which is the focus of this study. In the subgroup comparison, we first calculate the factor score for each respondent and conduct an independent t-test to see whether the manipulation of mindset worked. The result of t-test suggests that the manipulation of mindset worked as expected ($t = 6.21, p < .001$), in the sense that participants in the maximizing condition score higher on average than those in the satisficing condition (.346 vs.

-.229). Also, the result of t-test on the single item question suggests that participants perceive the reward more visible when it being shared with company colleagues than with spouse (5.33 vs. 2.48, $t = 7.24, p < .001$).

Similar to the subgroup comparison in Study 1, we jointly fit the data of two mindset groups into two unconstrained models, serving as the benchmark. Then, we used the chi-square difference between the unconstrained and the constrained model to test the significance of each path. The comparison result confirms our hypothesis (H5a that strategic customers (maximizers here) are more motivated by normative beliefs, compared to non-strategic customers (satisficers here) ($\beta = .49$ vs. $.21, \Delta\chi^2 = 7.282, \Delta df = 1, p < .01$). However, no significant difference is identified for path estimates of the impact of behavioral beliefs ($\beta = .71$ vs. $.66, \Delta\chi^2 = .098, \Delta df = 1, p > .1$), supporting our hypothesis (H5b).

Further, we examine subgroup differences in each consumption context. We first compare participants with different mindsets but in the same public consumption context. The model comparison results suggest that maximizers are more influenced by both behavioral and normative beliefs than satisficers ($\beta = .76$ and $.55$ vs. $.60$ and $.15, \Delta\chi^2 = 4.032$ and 10.889 , both $\Delta df = 1, p < .05$ and $.001$). Then, participants with different tendencies in the private consumption condition are examined. The model comparison results show that maximizers are influenced marginally more by normative beliefs but not by behavioral beliefs ($\beta = .35$ and $.68$ vs. $.30$ and $.71, \Delta\chi^2 = 2.983$ and $.407$, both $\Delta df = 1, p < .1$ and $> .1$). The results are illustrated in Table 3.

-----Insert Table 3 Here-----

Discussion

This study offers direct evidence for how the maximizing mindset alters the impact of normative beliefs on motivation. Specifically, we manipulate participants' dominant mindset and

assign them into public or private consumption contexts. The comparison between participants with different mindsets again confirmed that maximizers are influenced more by normative beliefs compared to satisficers. More importantly, the examination of participants with different mindsets in different consumption contexts further reveal that maximizers are not influenced by normative beliefs so much in the private consumption context as in the public consumption context. This result implies that the maximizers care about normative beliefs in the pursuit of better social evaluations, aligned with our arguments on symbolic consumptions and proposed hypothesis (H5a) which is accepted. The result also showed that maximizers and satisficers are not different in being motivated by behavioral beliefs (H5b).

Study 3

This study attempts to examine the impact of holistic thinking style on the formation of intention to redeem a reward. Specifically, we manipulate participants' dominant thinking style and contrast its influence on processing experience with varied levels of relevance in the formation of intention. Despite the fact that how individuals view the world is considered more as a personal trait, it is possible to manipulate individuals' dominant thinking style by directing their attention to overview or detail (e.g., Althuisen and Chen 2021; Lee 2018; Sacchi, Riva, and Aceto 2016). In this study, we utilize this manipulation to investigate the differences between strategic and non-strategic customers in their intention formation. On the other hand, we alter the relevance of learned experience to demonstrate how holistic thinking style influences the formation of intention. As discussed, holistic thinkers are better at making associations between current and future events, and thus strategic customers are more likely to be influenced by control beliefs such as self-efficacy, which is derived from associating other's experience with one's own redemption (Bandura 1977). In this sense, the ability of making such an association becomes less critical when

the experience is more relevant and easier to establish the association. Hence, by altering the level of relevance of other's experience, we can illustrate how holistic thinkers differ in their formation of intention.

Design and Methods

The study uses a 2x3 design, testing thinking style (whether holistic or analytic) and assessing experience (absent, relevant or irrelevant) under both conditions. The setup of this study is also a shortened version of Study 1 with the second scenario described above. Specifically, the study starts with a task that attempts to manipulate participants' thinking style and is followed by the combination of a shortened version of the first scenario in Study 1 and the full version of the second scenario in Study 1. Participants complete the study after responding to corresponding items. In other words, we only assess the customers' intention formation phase in the study.

Following Sacchi et al. (2016), we use Navon's (1977) letter task (e.g., a letter "D" composed by the letter "K", see Figure 8) to manipulate participants' thinking style. Particularly, we ask participants to identify the letter in the picture and offer them one wrong and one right choice. In the holistic thinking condition, the right choice always corresponds to the global letter composed of other letters (i.e., "D" in the example above), whereas in the analytic condition, the right choice always corresponds to the local letter composed of the global letter (i.e., "K" in the example above). Notably, the wrong answer is not relevant to any of these two letters (e.g., "A" in the example above). Participants in the task answer ten questions, priming their attention to the details or the big picture and the dominant thinking style.

To manipulate the experience relevancy, we offer a story about redeeming a reward after all scenario descriptions are offered (i.e., controllability information). Specifically, participants in the relevant condition will read a story about a close friend redeeming a free flight ticket reward,

whereas participants in the irrelevant condition will read a story about an unknown person redeeming a free phone reward. In the story for both conditions, the subject wants to redeem the reward as soon as possible but does not have enough points. The subject was able to get enough points for the reward eventually by asking for a friend's help (the relevant condition) or winning a lottery that awards points (the irrelevant condition). Those in the experience absent (i.e., control) condition will receive no experience but a short paragraph about the daily flight schedule to Hawaii.

-----Insert Figure 8 and 9 Here-----

Finally, we use items identical to those in Study 1 to measure participants' motivation, intention, self-efficacy, and perceived controllability. In addition, at the very end of the study, we use the shortened scale of analytic-holistic thinking scale (Hossain 2018) as the manipulation check for thinking style, and the relevancy scale (see Figure 9) is adapted from the future self-continuity scale (Ersner-Hershfield et al. 2009) as the manipulation check for experience relevancy.

Results

Participants are recruited from Amazon Mturk platform, and 579 out of 1304 respondents completed the study. To ensure that participants are following the instruction in the priming task, we insert an attention check question that randomly appears in the middle of the task. This question requests participants to choose (only) the second choice from right to left regardless of what the question asks. Yet, to make this attention check fair, such an instruction is provided at the bottom of the pseudo question.

We first fit the data into sub-model that describes the formation of intention. The model fit indicates that the model explains the data well ($\chi^2/df = 1.505$; CFI = .917; NFI = .873; RMSEA = .045). Moreover, all path estimates are significant at the .001 level, and the estimates are largely consistent with those in Study 1. Figure 10 illustrates the result of this model.

-----Insert Figure 10 Here-----

We next turn to the subgroup comparison, which is the focus of this study. In the subgroup comparison, we first calculate the factor score for each respondent and conduct an independent t-test to see whether the manipulation of thinking style worked. The result of t-test suggests that the manipulation of mindset worked as expected ($t = 8.27, p < .001$). Also, the result of t-test on the single item measure of relevancy suggests that participants perceive the successful experience is more relevant in the relevant condition than in the irrelevant condition (3.73 vs. 2.17, $t = 5.33, p < .001$).

Similar to the subgroup comparison in Study 1, we jointly fit the data of two subgroups in the control condition into two unconstrained models, serving as the benchmark. Then, we used the chi-square difference between the unconstrained and the constrained model to test the significance of each path. The comparison results confirm our hypotheses (H6a and H6b) that strategic customers (holistic thinker here) are more influenced by both self-efficacy and controllability, compared to non-strategic customers (analytical thinker here) ($\Delta\chi^2 = 6.335$ and 7.593 , both $\Delta df = 2, p < .05$). More specifically, holistic thinkers are more influenced by their moderation effects, not by their main effects ($\Delta\chi^2 = 9.450$ and 3.995 , both $\Delta df = 2, p < .01$ and $> .1$).

Further, we examine sub-conditions based on which experience is shared to the participant. We first compare participants with different thinking styles but being shared with the same relevant experience. The model comparison results suggest that holistic thinkers are not different from analytical thinkers, in terms of being influenced by self-efficacy and controllability ($\Delta\chi^2 = 5.324$ and 3.202 , both $\Delta df = 2$, both $p > .05$). Then, we investigate those being shared with the irrelevant experience. The model comparison results show that holistic thinkers are significantly influenced

more by both efficacy and controllability, compared to analytical thinkers ($\Delta\chi^2 = 6.231$ and 9.414 , both $\Delta df = 2$, both $p < .05$). The results of all these comparisons are reported in Table 4.

-----Insert Table 4 Here-----

Discussion

This study offers direct evidence for how the dominant thinking style alters the impact of efficacy and controllability on intention. Specifically, we manipulate participants' dominant thinking style and assign them into successful experience (relevant, irrelevant, absent) conditions. The comparison between participants with different dominant thinking styles in the control group (experience absent) again confirmed that holistic thinkers are more influenced by efficacy and controllability compared to analytical thinkers. Moreover, the contrast between comparison results for the relevant and irrelevant experience conditions further reveal that the impact of dominant thinking style is achieved by linking learned successful experience to the focal redemption. When the experience is highly relevant, both holistic and analytical thinkers can connect the experience with their own pursuit of reward redemption. However, when the experience is not explicitly relevant to the focal redemption, holistic thinkers are better at connecting experiences with the focal reward redemption than analytical thinkers. These differences are reflected in the results of subgroup comparisons. Compared to those in the control group, both analytic and holistic thinkers are more influenced by perceived efficacy and controllability in the high relevancy condition, yet only holistic thinkers are more influenced in the low relevancy condition. Combined, we can conclude that holistic thinkers are good at making connections, which enhance the influence of self-efficacy and perceived controllability on their intention (H6a and H6b).

General Discussion

In this study, we offer a model to describe how customers in loyalty programs form motivation and intention to redeem a reward, and we compare how strategic and non-strategic customers behave differently in this model. Further, we conducted three experiments to validate our proposed model and differences. In the first study, we showed that the proposed model is better than the model based on the theory of planned behavior (Ajzen 1991). More importantly, the study confirms that customers' redemption motivation is influenced by both behavioral and normative beliefs, validating our argument that customers attempt to achieve two goals, reward attainment and symbolic consumption, from the redemption. Also, the result concludes that control beliefs, self-efficacy and controllability, have both main and moderating effects on the intention formation, and that the moderating effect is notably larger than the main effect. In the second and third study, we confirmed that strategic and non-strategic customers are different in that strategic customers are more motivated by their normative beliefs with a stronger goal of symbolic consumption and that they are more sensitive to the influence of control beliefs in intention formation due to their greater tendency to make associations. Particularly, in the second study, we showed that strategic customers are more influenced by normative beliefs and that such a difference is attenuated when the consumption is less visible to others. Combining these two results, we validated our argument that the difference in the influence of normative beliefs is as a result of the fact that that symbolic consumption is more important to strategic customers. In the third study, we showed that strategic customers are more influenced by control beliefs and that such a difference is attenuated when the information the customer learned is more relevant to the focal redemption. Combining these two results, we validated that the difference in the influence of control beliefs is because the strategic customer can associate more information with the focal redemption. In sum, we believe this study

has the following four key findings: (1) we provide a new model that delineates customers behavior in redemption from the goal perspective; (2) we identified that customers pursue approval goal of symbolic consumption in addition to the well-recognized procurement goal of reward attainment; (3) we found that strategic customers are more motivated by normative beliefs because of their stronger pursuit of symbolic consumption goal; and (4) we found that strategic customers are more influenced by control beliefs because of their tendency to make associations. Below, we discuss how scholars and managers can potentially utilize these key findings in future studies and business practice.

The Goal Theory Perspective View

As summarized, we offer a model that delineates customers' behavior in redemptions from the goal theory perspective, and it serves as the cornerstone for future studies to further explore customers' behavior in redemptions. Redemption is the most fundamental interaction a customer makes in the loyalty program, and thus it deserves scholarly attentions. Past studies, as reviewed, focused more on customers' perception and cognition, which is not sufficient because redemption is a process rather than an ephemeral action. We addressed this issue by examining from the goal theory lens, which initialized a new set of discussion of how customers choose and pursue their targeted reward in redemption. For example, future studies can examine how customers manage two conflicting goals with goal theories (Kruglanski et al. 2002). Specifically, redeeming a luxury reward satisfies customers' goal of reward attainment but violates their goal of symbolic consumption when their focal referents are against luxurious consumptions. Without the view from the goal theory perspective, scholars might be lost in customers' conflicting choices with identical alternatives provided.

A goal theory perspective also guides the design of reward setup in the loyalty program with a more in-depth understanding of customers' needs and wants. Conclusions based on customers' perceptions and cognitions are limited in instructing which reward is more appealing to customers, and they cannot offer a holistic view of the reward setup in the loyalty program. On the contrary, we suggest, from the goal theory perspective, that a loyalty program should have at least two types of rewards to satisfy different symbolic consumption goals: one that allows customers to get associated with their referent group, and the other that enables customers to become distinguished from their referent group. In other words, rewards in the loyalty program should include popular items that are widely accepted by (a group of) customers and unique items that show off the (unpopular) identity of the user. Moreover, managers can further investigate different means to the same goal based on the goal theory perspective. For example, in the study we argued that both maximizers and satisficers care about the goal of reward attainment but with distinct foci. Maximizers emphasize the utility of obtaining the reward, whereas satisficers focus on the balance between utility and effort in obtaining the reward. In this sense, managers can offer different types of rewards to satisfy these two types of customers: one offers the maximal benefit but requires tremendous effort, and the other offers moderate benefit and requires moderate effort.

The Symbolic Consumption Goal

In this study we argued and showed that customers have the goal of symbolic consumption in redemptions, in addition to the well-recognized goal of reward attainment. This conclusion implies that customers do not redeem the reward just because of its value but also its symbolic meaning, and thus it expands the theoretical lens in the examination of customers' redemption behaviors. Particularly, this conclusion offers a theoretical base to integrate a variety of self/social related theories and findings. For example, future studies can dig into the self-expression message

in the redemption, utilizing the rich literature on identity-based motivation and behavior (e.g., Oyserman 2009a; b). Similarly, it has been well established that customers select brands that are congruent with their self-image and avoid those that are incongruent (Jamal and Goode 2001; Kressmann et al. 2006), and this theory can be integrated into the customers' redemptions. As such, it can be argued that customers follow the same pattern in their reward selections. Finally, future studies may borrow findings on interpersonal and peer influences on customers' purchase (e.g., Adjei, Noble, and Noble 2010) in their exploration of interpersonal influences on redemptions, which is interesting given that loyalty programs can be perceived as a community independent from the brand community (Rosenbaum, Ostrom, and Kuntze 2005). In short, we see a myriad of potential topics in this area based on customers' symbolic consumption goal in redemptions.

Also, the symbolic consumption goal offers great opportunities to develop new strategies to encourage customers' redemptions. In the real world, it is not difficult to observe that customers brag about their successful redemptions from loyalty programs, and it follows that customers will be more willing to redeem rewards when positive social meanings are attached to the redemption. Therefore, managers can consider adding social elements in redemptions to increase the motivation to redeem. For example, loyalty programs can add a convenient way for customers to share their successful redemptions and their story in pursuing the reward to social media. In this way, the redemption and the consumption of the reward are more likely perceived to be in public, and thus the social meaning of the redemption is more salient to customers. Similarly, loyalty programs can add social interactions among users, such as allowing multiple users to compete in their point collection for the same reward. This strategy also increases the public exposure of the redemption and thus enhances the symbolic meaning (social comparison) of the redemption. However, it

should be noted that social elements could backfire when members do not perform as well as their peers do. In this sense, the use of social elements in the loyalty program should be carefully designed to minimize their negative influences.

Strategic Customer as Maximizers

Counterintuitively, we argued and showed that strategic customers are not different from non-strategic customers in the pursuit of procurement goal of reward attainment but rather in the pursuit of approval goal of symbolic consumption, as reflected in a greater influence of normative beliefs to strategic customers' motivation formation. This finding implies that strategic customers in the loyalty program are to show off their ability and/or effort in collecting tremendous points compared to their peers, and thus they achieve social approval or distinction from their referents. Built on this conclusion, strategic customers who are willing to wait for future sales in their purchases can possibly attempt to signal their thrift. It follows that strategic customers might enjoy their waiting because being thrifty is a moral activity (Bardhi and Arnould 2005). In this sense, our study reveals that strategic customers do not merely act on economic reasons, and thus future studies can examine the impact of different social meanings of being strategic. For example, in redemptions, the signal of being superior in point collection by redeeming a large reward might not be effective in a loyalty program where points can be earned by various approaches. It will be interesting to learn whether strategic customers' attempts to maximize are based on their perceived effectiveness of the signal like the clarity of the redemption symbol.

Strategic Customers as Holistic Thinkers

The study also revealed that strategic customers are more sensitive to the non-volitional elements' influence, because of their greater tendency to make associations as holistic thinkers.

Specifically, we showed that strategic customers are more likely to associate less relevant events to the focal outcome, allowing them to view and manage intertemporal events more holistically. This finding implies that strategic customer are more salient to and influenced by potential risks in the redemption, consistent with prior analytical study (Yin et al. 2009). In their study, Yin et al. (2009) analyzed the differences between displaying all vs. one inventory to arriving customers, and they showed that firms can benefit from using displaying one inventory strategy to increase the shortage (sold-out) risk perceived by customers and to minimize potential strategic purchases. In other words, their study showed that strategic customers are more likely to be influenced by an increase in the perceived risk, consistent with our conclusion. In this sense, we hope that future studies can reveal how strategic customers decide the strategic delay in the redemption for a larger reward. As we discussed, strategic customers attempt to delay their redemption for a larger reward, but the risk increases as the delay of the redemption increases. Yet, strategic customers are more sensitive to risks associated with the delay, as we just discussed. As a result, it is self-evident that strategic customers must balance the length of the delay (or the size of the reward) with the associated risks.

Taking Care of Strategic Customers

Strategic customers in loyalty programs are the new challenge to managers. In our study, we identified two key characteristics of these customers, on which managers can rely to minimize their impacts. On one hand, we showed that strategic customers are motivated by the approval goal of symbolic consumption, suggesting that these customers attempt to express their self-identity by obtaining a superior reward. In this sense, managers can attempt to ease the feeling of deservingness associated with the effort involved in the reward attainment, and thus strategic customers cannot use their redemption as an approach to illustrate their superiority in point

collecting effort or ability. Specifically, loyalty programs can avoid using objective and quantitative measures (e.g., purchase frequency and spending amount) to award points to its customers and consider combining other subjective and qualitative measures, such as customers' engagement and "loyalty", which is more practical nowadays because of more data availability and the development in data analytic methods. However, such an approach might create confusion and concern on the fairness of the program, which potentially harms the efficacy of the program. Alternatively, managers can consider offering more unique rewards with moderate value, allowing a faster redemption pace and satisfying the symbolic consumption goal at the same time. Examples of this type of rewards include those offering unique experience such as yoga exercising sessions and culinary training sessions with (famous) professionals.

On the other hand, we found that strategic customers are more influenced by their control beliefs, including self-efficacy and controllability. In other words, strategic customers are more aware of the risk potentially associated with the redemption process. In this sense, managers can reduce the predictability of obtaining the most valuable rewards, and a possible approach is to limit the availability of the reward. For example, airlines only release very limited reward tickets to redeem at the advertised ratio, which increases the risk of getting the desired flight ticket in the redemption and thus potentially reduces the strategic behaviors.

Limitations and Future Research

The following issues limit the generalizability of our findings. First, all our studies were conducted in a hypothetical experimental setting, which cannot fully reflect customers' redemption choices in a non-experimental setting. Admittedly, a field study that surveys customers' past redemption behavior will help develop a more fulsome examination of our model. However, it is

also possible that customers could have selection bias and self-serving bias in memorizing their past redemptions.

Second, the study process might create recency bias in estimating the impact of motivation on intention. As we already noted in the study, this design is a comprise solution to discriminate the motivation and intention construct, which is difficult to measure in the operational stage. Third, we did not fully examine the impacts of elements in each belief. Avenues for future research should include an assessment of whether socio-demographic and socio-cultural variables moderate the findings. Follow up study should include an assessment of the impacts of the Covid-19 pandemic on consumer choice regarding consumption and choice in reward programs due to changes in the marketplace.

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Tables and Figures

Table 1: Construct Reliability, Validity, and Intercorrelation in Study 1

	CR	AVE	MSV	BB	EFF	INTENT	MOTIV	CTL	NB
BB	.917	.847	.808	.920					
EFF	.920	.696	.629	.793	.834				
INTENT	.866	.621	.484	.696	.688	.788			
MOTIVE	.859	.554	.530	.699	.550	.648	.744		
CTL	.836	.629	.548	.740	.710	.696	.728	.793	
NB	.856	.756	.564	.751	.738	.570	.684	.641	.870

BB: Behavioral belief, second-order construct for perceived value and value expectancy; EFF: Efficacy; CTL: Controllability NB: Normative belief, second-order construct for perceived norms and conformity tendency
The diagonal cell in the intercorrelation is the square root of AVE.

Table 2: Results for the Full Model and Subgroup Models in Study 1

	Full Model	Strategic Subgroup	Non-Strategic Subgroup
BB → Motive	.68	.61	.76
		$\Delta\chi^2 = .802, \Delta df = 1, p > .1$	
NB → Motive	.46	.85	.37
		$\Delta\chi^2 = 6.876, \Delta df = 1, p < .01$	
Motive → Intention	.14	.47	.13
		$\Delta\chi^2 = 5.484, \Delta df = 1, p < .05$	
MxE → Intention	.61	.54	.20
		$\Delta\chi^2 = 7.894, \Delta df = 1, p < .001$	
Efficacy → Intention	.18	.19	.19
		$\Delta\chi^2 = .000, \Delta df = 1, p > .1$	
Joint Impact of Efficacy		$\Delta\chi^2 = 9.862, \Delta df = 2, p < .01$	
MxC → Intention	.61	.71	.54
		$\Delta\chi^2 = 5.487, \Delta df = 1, p < .05$	
CTL → Intention	.24	.20	.25
		$\Delta\chi^2 = .988, \Delta df = 1, p > .1$	
Joint Impact of Controllability		$\Delta\chi^2 = 7.240, \Delta df = 2, p < .05$	
Full Model difference		$\Delta\chi^2 = 29.168, \Delta df = 7, p < .001$	

BB: Behavioral Beliefs; NB: Normative Beliefs; MxE: Interaction between motivation and efficacy; CTL: Controllability; MxC: Interaction between motivation and Controllability

Table 3: Results for the Full Model and Subgroup Models in Study 2

	Full Model	Max	Sat	Public		Private	
				Max	Sat	Max	Sat
BB → Motive	.69	.71	.66	.76	.60	.68	.71
		$\Delta\chi^2 = 1.098, p > .1$		$\Delta\chi^2 = 4.032, p < .05$		$\Delta\chi^2 = .098, p > .1$	
NB → Motive	.32	.49	.21	.55	.15	.35	.30
		$\Delta\chi^2 = 7.282, p < .01$		$\Delta\chi^2 = 10.889, p < .01$		$\Delta\chi^2 = .098, p > .1$	

BB: Behavioral Beliefs; NB: Normative Beliefs; Max: maximizer condition; Sat: satisficers condition

Table 4: Results for the Full Model and Subgroup Models in Study 3

	Full Model	EXP Absent		EXP Relevant		EXP Irrelevant	
		Holistic	Analytic	Holistic	Analytic	Holistic	Analytic
MTV → Intent	.37	.25	.40	.23	.29	.34	.44
		$\Delta\chi^2 = 3.304, p > .05$		$\Delta\chi^2 = 1.866, p > .05$		$\Delta\chi^2 = 2.479, p > .05$	
MxE → Intent	.38	.38	.23	.42	.37	.46	.26
		$\Delta\chi^2 = 4.898, p < .05$		$\Delta\chi^2 = 2.686, p > .05$		$\Delta\chi^2 = 5.236, p < .05$	
EFF → Intent	.10	.08	.07	.14	.06	.12	.11
		$\Delta\chi^2 = .806, p > .05$		$\Delta\chi^2 = 1.737, p > .05$		$\Delta\chi^2 = .329, p > .05$	
MxC → Intent	.47	.45	.29	.54	.56	.52	.22
		$\Delta\chi^2 = 4.463, p < .05$		$\Delta\chi^2 = .438, p > .05$		$\Delta\chi^2 = 6.830, p < .05$	
CTL → Intent	.13	.15	.07	.10	.09	.23	.13
		$\Delta\chi^2 = 2.766, p > .05$		$\Delta\chi^2 = .571, p > .05$		$\Delta\chi^2 = 3.525, p > .05$	
Total Difference		$\Delta\chi^2 = 15.752, p < .01$		$\Delta\chi^2 = 5.851, p > .05$		$\Delta\chi^2 = 20.409, p < .01$	

MTV: Motivation; EFF: Efficacy; MxE: Interaction between motivation and efficacy; CTL: Controllability; MxC: Interaction between motivation and Controllability; EXP: Experience

Figure 1: Conceptual Framework of the Theory of Reasoned Goal Pursuit (TRGP)

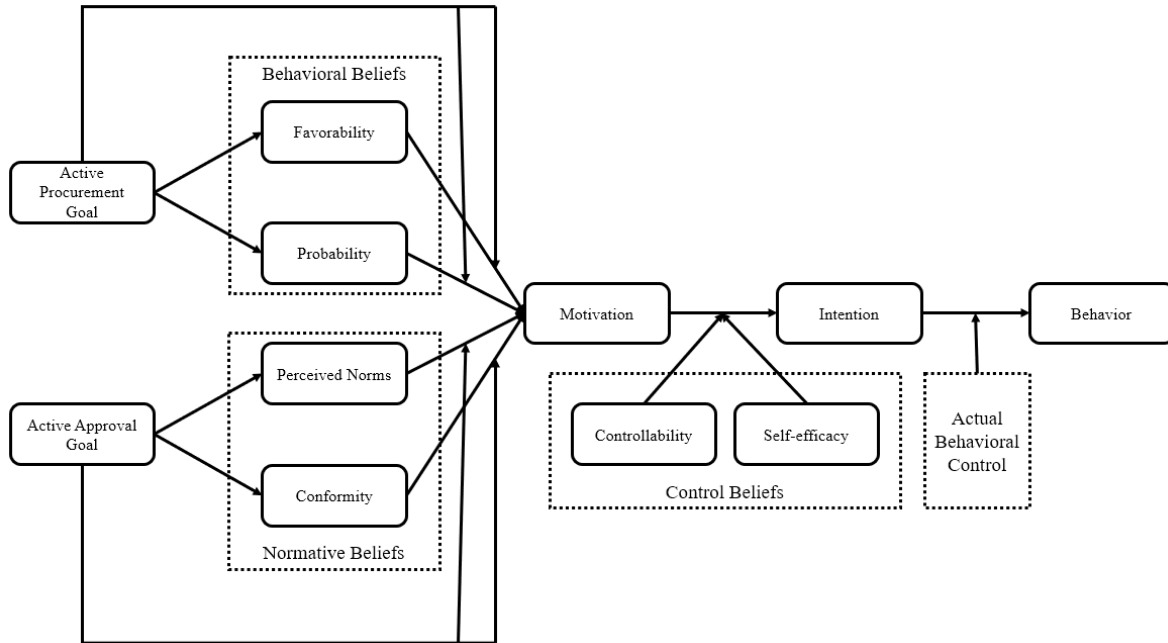
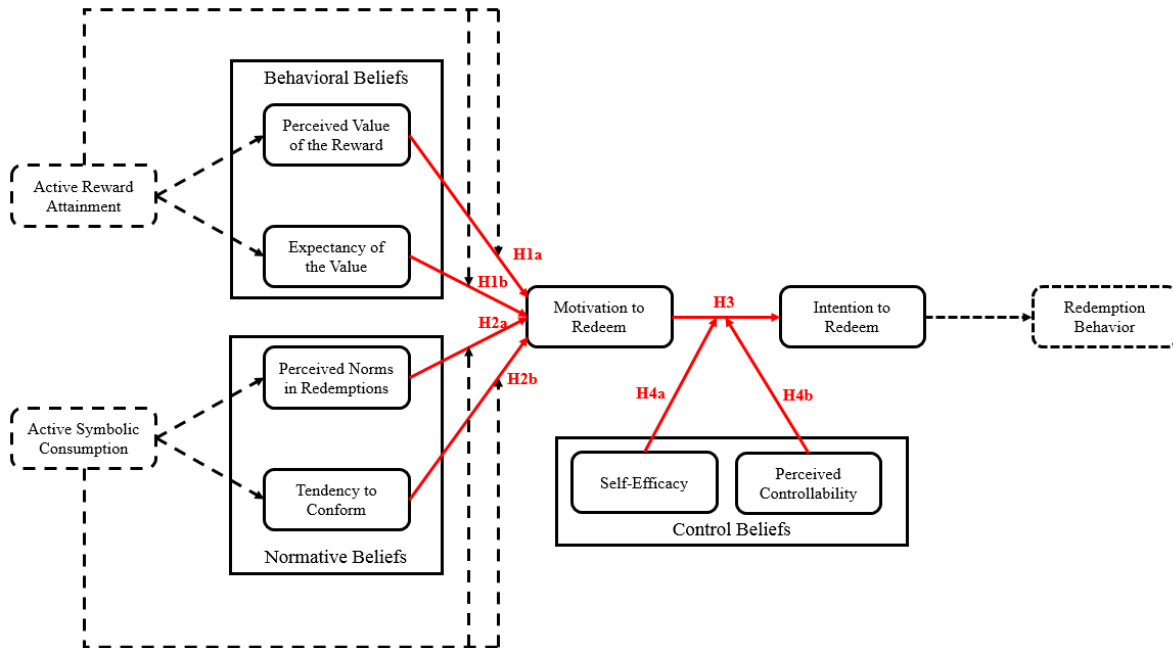
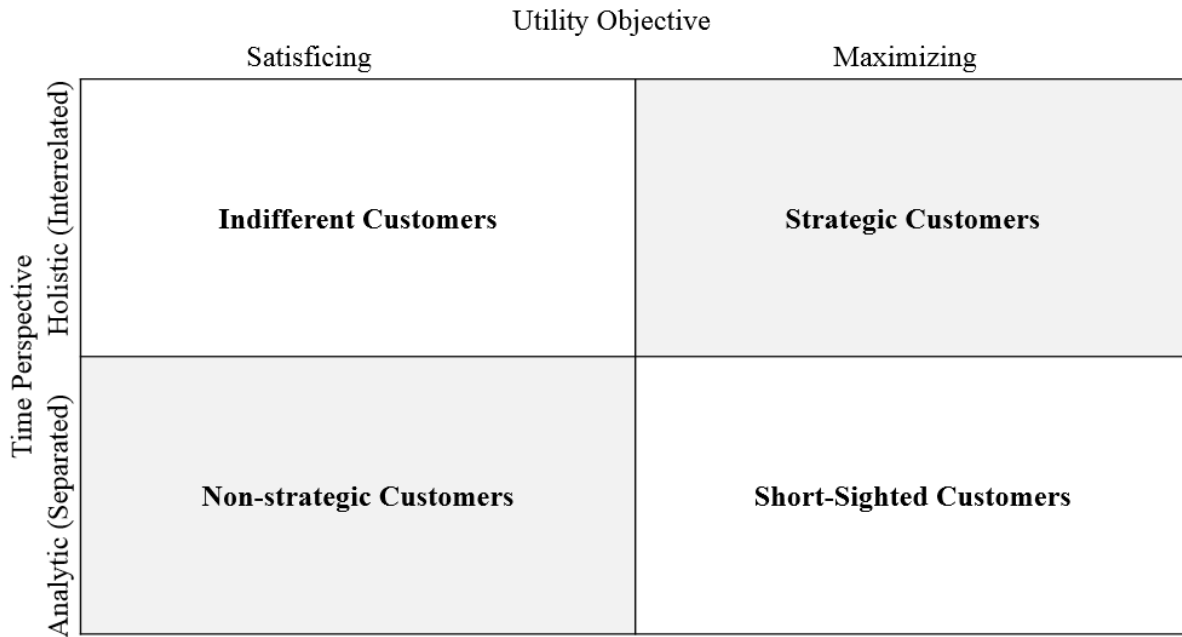


Figure 2: Operational Framework of TRGP in the Reward Redemption Context



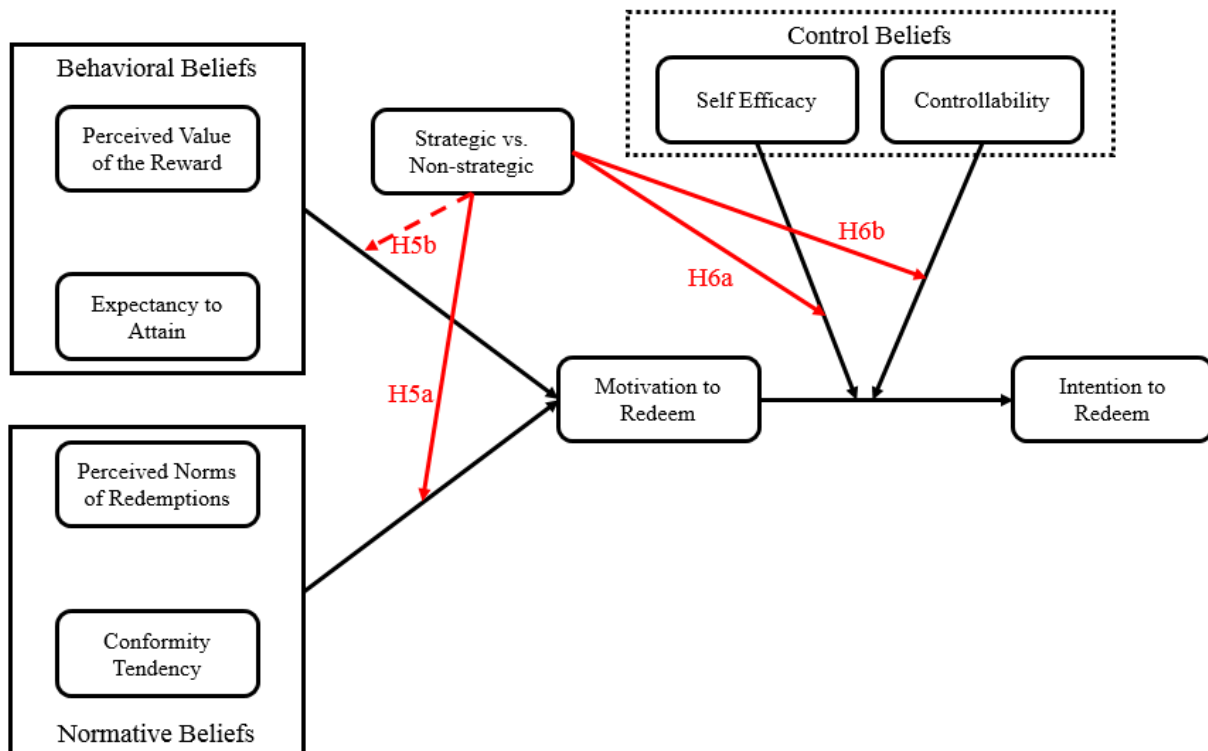
Dotted lines from active reward attainment and symbolic consumption to behavioral and normative beliefs are not tested as main effects in the study but are part of the study design manipulation. Dotted lines from active reward attainment and symbolic consumption as moderating influences on motivation to redeem are not tested in the study.

Figure 3: Typology of Customers in Loyalty Program



Studies of indifferent customers and short-sighted customers are beyond the scope of current study

Figure 4: Proposed Differences between Strategic Vs Non-Strategic Customers



Dotted line indicates no significant difference.

Figure 5: Result of the Fitted Model in Study 1

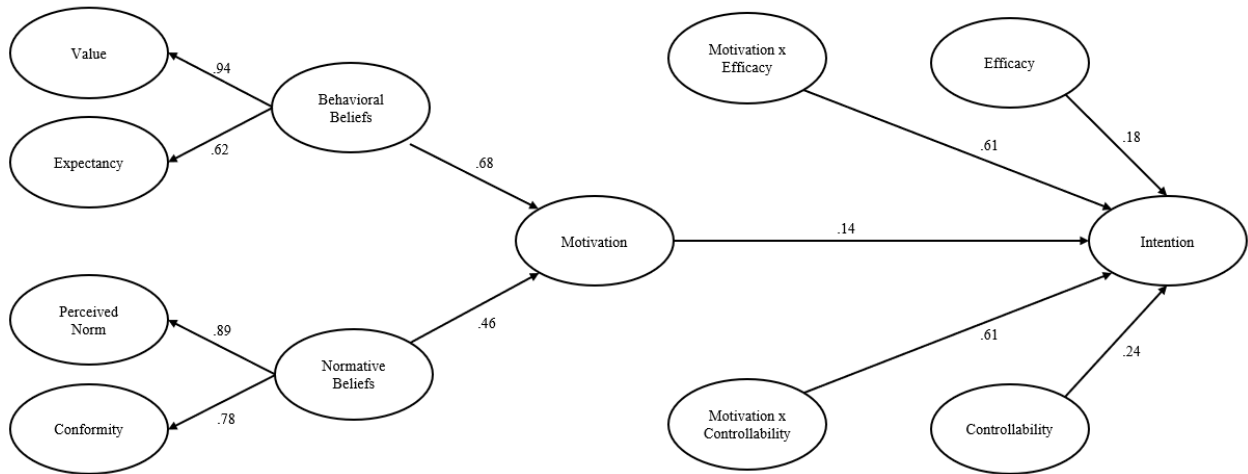


Figure 6: Alternative Models used in Study 1

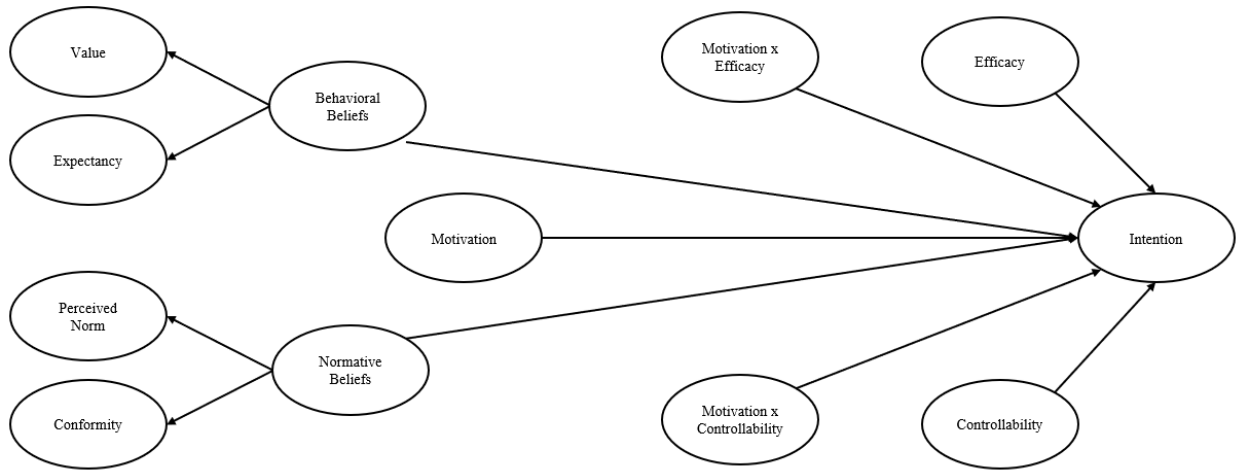


Figure 7: Result of the Fitted Model in Study 2

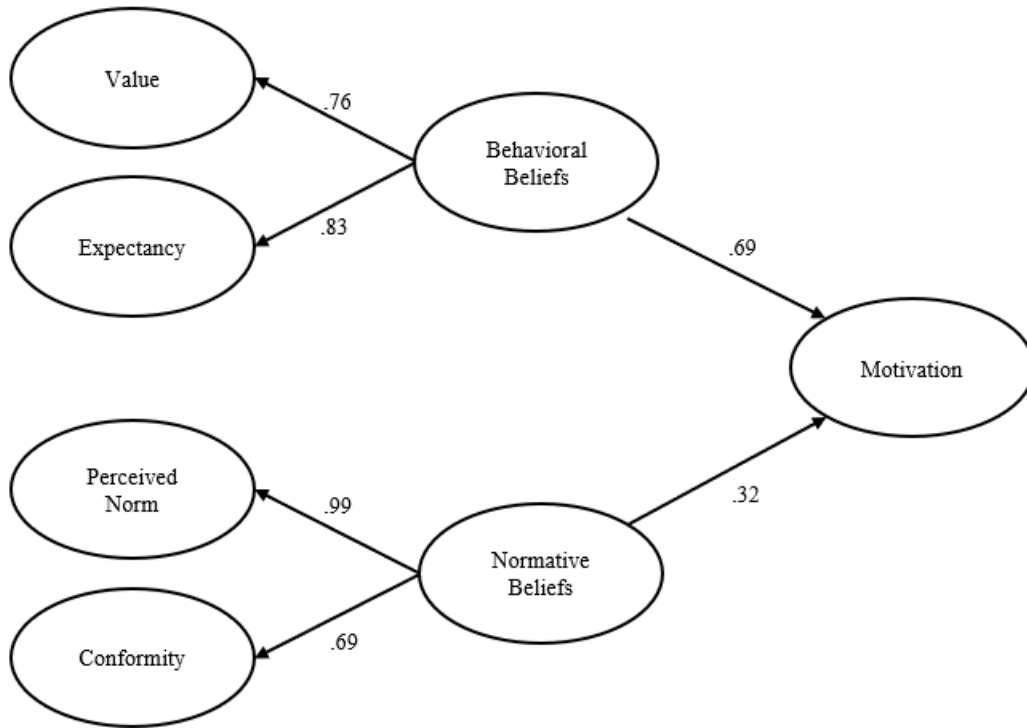


Figure 8: A Navon's Letter Stimulus Example: A Letter "D" Composed by The Letter "K"

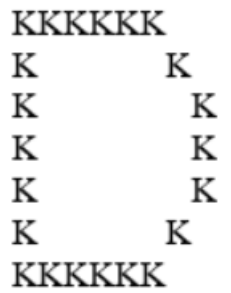
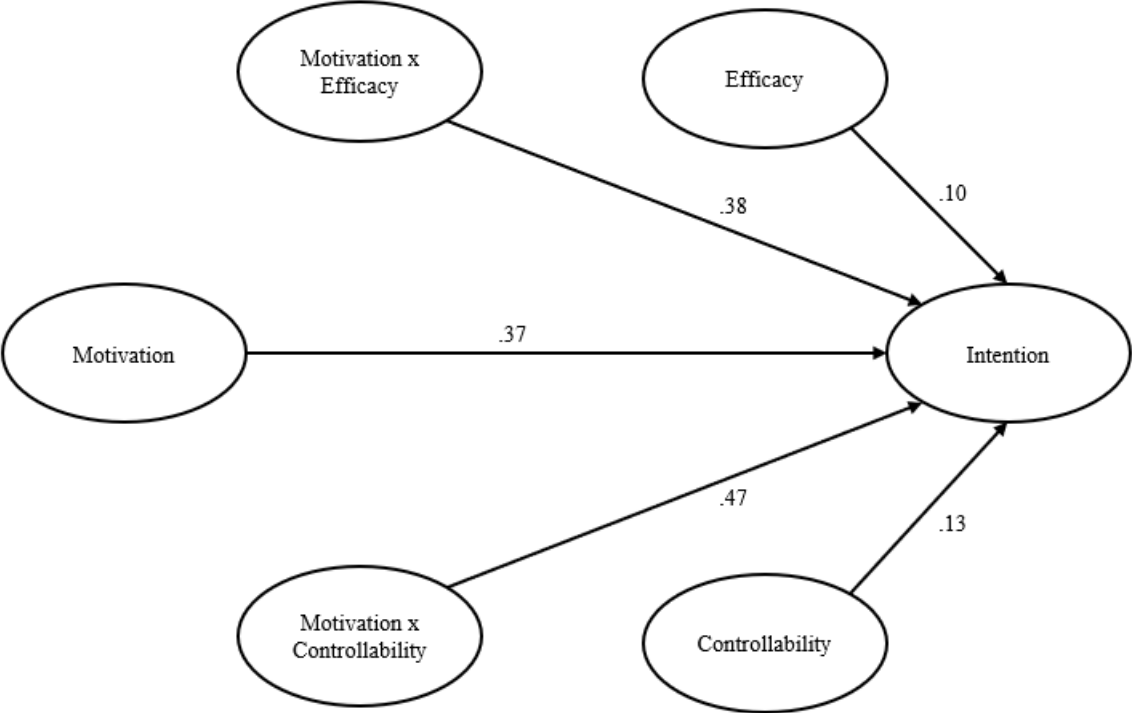


Figure 9: Relevance Scale in Study 3



Figure 10: Result of the Fitted Model in Study 3



CONCLUSION

As noted in the introduction, this dissertation attempts to examine a variety of wait contexts, establishes a stronger understanding of customers in these contexts, and offers actionable insights for managers facing complex wait issues in the practice.

The first essay examined customers' perceptions and reactions to waits in the service, and the findings of the meta-analytic study strongly suggest that customers consider service wait as both an integral attribute of the service and an extra cost to the service. Specifically, the essay offers an integrated model that combines two widely used theoretical perspectives, the expectancy disconfirmation model (Oliver 1980, 2014) and the psychological cost model (Osuna 1985). The incongruencies between these two models were reconciled by examining the role of four moderators, "*during the wait*" vs. "*after the wait*", "*known wait*" vs. "*unknown wait*", '*wait with regret*' vs. '*wait without regret*', and '*wait for important service*' vs. '*wait for unimportant service*'. The proposed 'dual-perspective' integrated model with moderators offers service managers clear guidance on the selection of wait management strategies. To name a few, recommendations include a) customer anger is evoked by both unacceptable wait and incurred time loss, fueled in equal measure by both subjective time and disconfirmation, and thus there is a need to balance both aspects; b) In the event that waits are outside their control, service managers are better off not communicating and setting up customer wait expectations explicitly, and it is better to inform customers the wait status instead; and c) it might not always be a good idea to offer customers more flexibility and choice to avoid waits, such as making online or phone (mobile) reservation or joining a virtual line in advance, because waiting customers who forego such options are more prone to blame the service provider as a coping strategy.

The second essay investigated customers' decision to wait for the new product after the new product preannouncement, and the findings of four experimental studies validate that customers are more likely to wait when they have hedonic consumption motives. Specifically, the essay suggests hedonism inhibits the increase in customers' salience of opportunity cost and enhances the increase in customers' future time preference, both of which accelerate the decline of the discount rate of the future product. This effect of hedonism comes from greater use of affective processing that is deeply rooted in its definition. Affective processing makes customers less sensitive to wait length and thus reduces the salience of opportunity cost associated with the wait. Also, affective processing triggers customers' greater use of the abstract, high-level construal and subsequently allows them to exert more self-control, resulting in a greater preference for the new product in the future. Collectively, based on these four studies, the implication for product managers is that they should focus on the hedonic aspect of their new product in the preannouncement strategy, so that more customers will wait for the new product. Further, this finding can be applied in the optimization of promotion strategies for firm's scheduled future events, in the sense that the firm can select its emphasis to either encourage or discourage customers' waiting.

The third essay explored customers' formation of motivation and intention to pursue (wait for) a larger reward in loyalty program redemption. Structural equation modeling findings validate that 'strategic customers' who pursue the maximizing utility objective (maximizers) and hold the holistic time perspective (holistic thinkers) are more likely to form the intention to delay their redemption for larger rewards. Specifically, the essay adopts the theory of reasoned goal pursuit (Ajzen and Kruglanski 2019) to develop a model that delineates customers' motivation and intention formation in redemption. Further, strategic customers' motivation formation is more

influenced by normative beliefs due to their maximizing utility objective, and their intention formation is more influenced by control beliefs because of their holistic time perspective. The findings of this study inform loyalty program managers to consider the symbolic meaning of the reward, which is a critical consumption goal for customers in their reward redemption. Also, the findings imply that the potential risk in the reward redemption process is a critical factor in strategic customers' intention formation because the risk impacts their perceived controllability of the redemption. Based on these findings, loyalty program managers can design more attractive reward scheme and develop more effective strategies for strategic customers.

Waiting is arguably the simplest way to utilize time, the most pervasive and common non-monetary resource, in exchange. As a non-monetary resource, time is often compared to money in prior studies. For example, Soman (2001) argues that time is different from money in mental accounting in the sense that (a) time cannot be inventoried or replaced; (b) time is not as easily aggregated as money, and (c) accounting for time is not a routine activity as accounting for money. Also, the decision-making literature considers time different from money because its value is highly context dependent and ambiguous (Leclerc, Schmitt, and Dubé 1995; Okada and Hoch 2004). Yet, based on this dissertation, we can argue that spending time is different from spending money because customers cannot be separated from the act of spending time. In other words, customers do not only sacrifice time resource but also go through the wait.

This idea about the dual perspectives of the wait appears repeatedly in all three essays. Specifically, in the first study, this idea is validated in the integrated model of customers' reaction to service waits, where customers consider both the service attribute and the service cost aspect of the wait. Similarly, in the second study, this idea is reflected in the discounting function of the value of future products, where customers consider both opportunity cost and impatience in the

wait for the new product. Finally, in the third study, this idea is hidden in behavioral, normative, and control beliefs used in the formation of redemption motivation and intention, where customers evaluate the outcome and their capability to achieve such an outcome before the pursuit of larger rewards.

In this sense, the examination of wait offers a better understanding of customers experience in the customer journey (Lemon and Verhoef 2016), because waits as a ‘slow-motion’ payment simplifies the separation of customer experience from stimuli and evaluative outcomes (Becker and Jaakkola 2020). For example, in the first study that examined the purchase stage of customer experience, the discussion isolated stimuli that impacts measures of wait length and identified three mediating customers’ responses (i.e., anxiety, anger, and wait acceptability) in utilizing their non-monetary resources. These mediating responses cannot be revealed in the context of spending money, because the action of making the payment completes immediately.

Of course, this dissertation cannot cover every single aspect of customers in waits. One key aspect not covered in the discussion is the impact of customers’ diverse time perceptions, such as differences in time perspectives and cultural differences. Time perspective refers to “the totality of the individual’s views of his (or her) psychological future and psychological past existing at a given time (Lewin 1951, p. 75)”, and Zimbardo and Boyd (1999) identified five different types of time perspectives, including past-negative, present-hedonistic, future, past-positive, and present-fatalistic. Time perspective is important element in the understanding of customers in waits (or more generally customers’ use of time), because it is “the often nonconscious process whereby the continual flows of personal and social experiences are assigned to temporal categories, or time frames, that help to give order, coherence, and meaning to those events (Zimbardo and Boyd 1999, p. 1271).” As somewhat discussed in the third essay, time perspective can influence customers’

view of the association between current and future events, which subsequently influences their control beliefs and their intention to wait for larger rewards. Besides time perspective, time perception is also under the influence of culture. Graham (1981) presented and compared three models of time perception, including linear-separable, circular-traditional, and procedural-traditional models, and Pàmies et al. (2016) found that individuals from different cultures have diverse interpretations of punctuality and tolerance for delays. Also, as noted in the third essay, holistic and analytic thinkers might have divergent time perspectives due to their differed ability in making associations, and notably, the differences between holistic and analytic thinking styles was first used to distinguish Eastern Asians from Westerners (Choi, Koo, and Choi 2007; Nisbett et al. 2001). In short, future studies can look into the differences in time perceptions of customers in waits.

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APPENDICES

Essay 1 Appendix

Table: Seed Paper Summary

Author (Year)	Focal Constructs	Primary Arguments and Theories¹
Maister (1985)	Wait Time, Disconfirmation, Service Satisfaction, Filled Time, Anxiety, Justice, Social Interaction	The expectancy disconfirmation model (Oliver 2015) Filling activities distract the attention paid to the passage of time. People are afraid of losing control of the situation. People feel uneasy with uncertainty in waits. People want explanation about the wait. Injustice creates more uncertainty in waits. Social interaction provides filling activities in waits.
Dube-Rioux, Schmitt, and Leclerc (1989)	Wait Time, Service Satisfaction	Waits block the satisfaction of a need, which creates psychological tension and corresponding behavioral reaction (i.e., Field Theory; Lewin 1939).
Larson, Larson, and Katz (1991)	Wait Time, Service Satisfaction, Filled Time, Information about the wait, Social Justice,	-
Taylor (1994)	Wait Time, Service Quality, Anger, Uncertainty, Filled Time, Attribution of the Wait (Controllability and Stability)	Delays would negatively affect one or more service attributes, which in turn affect the overall evaluation. Psychological cost model (Osuna 1985) Mood congruency theory (Mayer et al. 1992) Appraisal-attribution theory (Weiner 1985)
Leclerc, Schmitt, and Dube (1995)	Wait Time Loss,	Prospect Theory (Kahneman and Tversky 1979) Mental Accounting (Thaler 1985)
Taylor (1995)	Wait Time, Service Evaluation, Wait Controllability, Filled Time	The impact on service evaluation of process components of the service marketing mix can be influenced by attribution.
Baker and Cameron (1996)	Environment, Emotion, Filled Time, Social Justice, Attribution	Affect mediates the relationship between physical environment and an individual's response to that environment. The design of spatial layout influences the information that customers can receive in waits, which might change their perception about the violation of social justice (e.g. other customers wait less). The design of spatial layout influences the information that customers can receive in waits, which might change their perception about the attribution of the delay (e.g. employee visibility). The layout could attract customers' attention with information, entertainment, and other distracting activities.

		The social environment of other customers increases customers' social interaction but also social intrusion.
Hui and Tse (1996)	Wait Information, Subjective Time, Emotion, Acceptability of the Wait, Service Evaluation	Information distracts the attention paid to the passage of time (Hornik and Zakay 1996). Information facilitates customers' reinterpretation of the wait via cognitive reappraisal (Averill 1973).
Kumar et al. (1997)	Service Satisfaction, Expected Wait Time, Time Guarantee	Based on utility theory, satisfaction is determined by the mean and variance of expected wait time. Time guarantee reduces the variance of the expected wait time, thus increasing the satisfaction.
Hui, Thakor, and Gill (1998)	Music, Subjective Time	Positive valenced music provides a positive mood and reduces the urgency to leave the situation, which reduces the attention to the passage of time.
Pruyn and Smidts (1998)	Subjective Time, Objective Time, Acceptable Time, Appraisal of the Wait, Service Satisfaction	The expectancy disconfirmation model (Oliver 1980, 2015)
Antonides et al. (2002)	Objective Time, Subjective Time, Information	Psychophysical functions between objective stimuli and sensations.
Rafaeli, Barron, and Haber (2002)	Waiting Structure, Predictability, Arousal, Justice,	Single queue structure provides predictability in that the order of service delivery is clear to anyone in the line and prescribes actions and behaviors throughout the wait.
Grewal et al. (2003)	Wait Expectation, Store Patronage Intention, Store Atmosphere Evaluation	Wait expectation influences satisfaction with the wait experience, and in turn influences the behavioral intention. Customers can read the cues from the wait environment to form the wait expectation.
Kumar (2005)	Competition, Wait Experience	The competitors' wait time serve as the reference point to form the expectation in waits, which influences service satisfaction.
Kumar and Krishnamurthy (2008)	Congestion, Wait Decision	The uncertainty in levels of congestion will mitigate the risk aversion with respect to the uncertainty in the speeds of service.
Voorhees et al. (2009)	Wait Time, Anger, Regret, Perceived Justice, Affective Commitment, Physical Environment	Regret Theory (Taylor 1997)
Koo and Fishbach (2010)	Queueing, Value of the Queue Object	Goal Theory (Fishbach and Dhar 2005)
Giebelhausen et al. (2011)	Wait Time, Behavioral Intention, Wait Environment, Expected Wait Time	Wait can serve as a signal that indicates the service quality, so customers are willing to wait and are satisfied with a longer wait.
Janakiraman, Meyer, and Hoch (2011)	Subjective Time, Behavioral Intention	As the unpleasantness of waiting builds, perhaps people find it increasingly hard to focus on anything, but the sense of displeasure created by the immediate wait, which triggers abandonment without consideration of how it will affect the overall time required to obtain the reward.
Lim, Kum, and Lee (2015)	Time Orientation, Duration Judgement	The importance of different stimuli encountered during the experience to the final assessment depends on when the evaluation is made (i.e., prospectively or retrospectively)
Wang, Hong, and Zhou (2017)	Duration Judgement, Subjective Feelings, Mental Marker	Construal Level Theory (Trope and Liberman 2003)
Dahm et al. (2018)	Number of People Ahead/Behind, Affective Reactions	Social Impact Theory (Latané 1981)

¹: Only unique arguments and theories are mentioned.

Essay 2 Appendix: Supplemental Information

Demographic Information of Participants in Studies

	Gender ¹	Age Group ²			
	Female	18-24	25-34	35-44	45-54
Study 1	49.7%	7.5%	41.5%	20.8%	13.8%
Study 2	48.1%	11.5%	39.6%	19.6%	10.6%
Study 3	40.6%	13.6%	37.0%	20.8%	16.2%
Study 4	41.1%	5.3%	41.7%	21.2%	24.5%

¹: Binary choice (Female/Male) was used in this question. ²: other age groups include: 55-64, 65-74, and 75+.

Stimuli Used in Studies

Study 1

[Utilitarian] Suppose that you had a laptop computer brought several years ago and you spent about 90% of the time on your computer working for work-related tasks, such as doing research, conducting analyses, writing reports, and making slides. The laptop is still functional, but because of insufficient memory and a slow processor, you have had a number of problems with it. As a result, you are using the computer less often than you would like. Meanwhile, due to technological advances, you can buy a laptop computer that is thinner, has a wider screen, a faster process, and much larger memory capacity for a lower price. So it seems the time to get a new laptop. You have done a lot of research online and found your favorite brand just release a new laptop that perfectly fits your need. Below is an image and the specs of the laptop.

[Hedonic] Suppose that you had a laptop computer brought several years ago and you spent about 90% of the time on your computer working for entertainment and leisure activities, such as playing Internet games, watching movies and TV series, chatting with others on the Internet, and listening to music. The laptop is still functional, but because of insufficient memory and a slow processor, you have had a number of problems with it. As a result, you are using the computer less often than you would like. Meanwhile, due to technological advances, you can buy a laptop computer that is thinner, has a wider screen, a faster process, and much larger memory capacity for a lower price. So it seems the time to get a new laptop. You have done a lot of research online and found your favorite brand just release a new laptop that perfectly fits your need. Below is an image and the specs of the laptop.



Processor	Intel® Core™ i7-7700HQ Processor (2.80GHz 6MB)
Graphics	NVIDIA® GeForce® GTX 1060 6GB
Memory	16GB DDR4 2400 MHz
Storage	1TB PCIe SSD
Audio	JBL® Speakers and Subwoofer Dolby Atmos®
Display	15.6" FHD (1920 x 1080) IPS Anti-Glare LED Backlit

Study 2

You want to buy a new phone. Your current phone is still functioning, but it was bought three years ago. The phone is kind of outdated because smartphone manufacturers add some new features every year. You want a new phone because new features are useful and cool.

You sought out best phones in the market, and you just found the phone to buy. The phone has the most powerful processor in the market, and it supports 5G network. These two features are the main reasons for you to buy a new phone: your old phone is slow because of its outdated processor and its lack of support for 5G network, which was supported by your local carriers last year.

Moreover, the phone has several impressive features.

[Hedonic] Particularly, the phone is designed for entertainment. It offers the complementary access to Netflix dramas, shows, and movies, so that you can enjoy them anywhere using the phone. Also, it provides access to most music streaming platforms, and thus you can listen to your favorite songs as long as you have the phone.

More importantly, the phone system is professionally optimized for entertaining activities. For example, it has a gaming mode that boosts the dynamics and the vividness with 120hz refresh rate, providing an outstanding gaming experience.

[Utilitarian] Particularly, the phone is designed for high performance. It has top level water resistance, allowing the phone to work properly 10 meters under water for at least 30 minutes.

Also, it offers huge storage (512GB) with the potential to expand with SD cards, so that one can store as many documents and photos as needed.

More importantly, the phone system is optimized to make one's work easier and more productive. For example, it supports the stylus for faster note-taking on the phone. Also, its authentication system is top notch, protecting the security of your data, information, documents, and work files.

Study 2 – Pilot Study

[Learning] At the very beginning, we would like to introduce two concepts about an item: hedonic and utilitarian. They are the key concepts in this study, please read their definitions carefully and make sure you completely understand the distinction between them before you move on.

Hedonic refers to things that are emotional-relevant, entertaining, experiential. If a thing is hedonic, you will primarily use these words to describe it: fun, exciting, delightful, thrilling, or enjoyable.

Utilitarian refers to things that are functional, task-related, instrumental. If a thing is utilitarian, you will primarily use these words to describe it: effective, helpful, functional, necessary, practical.

Here is a list of common examples of hedonic and utilitarian products that were identified in past studies.

Hedonic Products	Utilitarian Products
Video games	Baby Diapers
Beer	Batteries
BBQ Grill	Office Chair
Fondue Set	Printer

[Testing] Please drag following items to the corresponding box.

Hedonic Products	Utilitarian Products

Possible items (each test picks four randomly)

Hedonic: Game Console, Ski Resort, Beer, Design of the Product

Utilitarian: Lawn Mower, First Aid Kit, Dishwasher Detergent, Quality of the Product

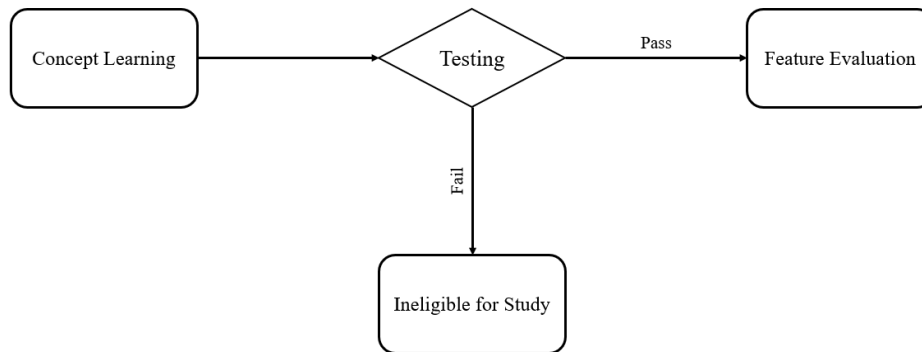
[Evaluation] Please indicate your feeling about following innovative features of a smartphone regarding whether it is hedonic or utilitarian. **There is no right or wrong answer for this question, we would like to know your perception.**

List of Features (each participant rates random ten from the list)

- 5G network supported
- Big bezel-less screen
- Space themed layout design
- 1600 Megapixel front camera
- Latest, most powerful processor (e.g. Qualcomm® Snapdragon™ 855)

- Water-cooling technique
- 4500 mAh battery
- 44W super fast-charging
- In-display fingerprint scanner
- Triple rear camera (64 MP main + 13 MP wide-angle + 13 MP telephoto)
- AI-assisted professional photo enhancer
- NFC for contactless payment
- Hi-Fi audio
- Impressionism style back cover
- Super night mode for night photography
- Optimization for mobile gaming
- Customizable LED light
- Global warranty coverage
- Voice control and virtual assistant
- Integration with other devices (laptops, smartwatches, home appliance, etc.)
- Foldable screen
- Dual screen
- Gesture control
- Facial recognition authentication
- Storage expansion
- Water resistant
- Wireless charging
- Complementary music streaming service
- Complementary TV series, TV shows, and movies from Netflix
- Complementary laser engraving (text and logo)
- Designed and endorsed by celebrities
- Optimization for productivity

[The study flowchart]



Study 3 and 4

[Utilitarian] You want a new camera bag for your part-time job as a photographer.

You were a full-time freelance photographer before COVID, but your business got trouble in COVID because of the reduction in demand and capricious lock-down policies. Fortunately, you found a photo editing work that allows you to make a living working from home.

As COVID-19 is getting under control, you are thinking to make some money working as a freelancer again. However, this time you just want to work part-time because your current job pays well and is a decent source of stable income. Different than before you expect to take some work that takes only two to three hours at most, instead of a full day. As a result, you want to buy a new camera bag for the freelancer work, because your previous bag is too big and clumsy.

Particularly, the camera bag should be customizable so that it fits to various shooting tasks. Also, the bag should have an easy access to the camera so that you can capture those stunning moments. Finally, the bag should be comfortable and durable as you will do outdoor photography in most cases.

[Hedonic] You want a new camera bag for your new hobby of outdoor photography.

You enjoyed hiking with friends at weekends before COVID, but you could hardly go to mountains in COVID because of restrictions in gathering and lockdowns. As a result, you started to take photos of little animals in your backyard, which is fun and easy as you are working from home.

As COVID-19 is getting under control, you are thinking to go hiking with friends again at weekends. Of course, you want to impress them with your new hobby, and a decent camera bag shows you are serious about it. Also, you want to look stylish with the camera bag - It is a cool hobby, and you want to be cool. Finally, you would feel good to have a set of gears that makes you look like a photographer. You know it doesn't really help, but you would definitely feel more confident about your technique. In short, you want to buy a new camera bag for the outdoor photography, because you are serious about the hobby.

Particularly, the camera bag should be well designed for outdoor photography so that your friends know you are serious about the hobby. Also, it should look stylish and elegant so that you look fashionable carrying with it. Finally, the bag should be popular among photographers so that you can feel more confident by looking like professional photographers.

Attention Checks Used in Studies

All studies included the following two attention checks.

1. “I am doing this study without paying any attention to whatever it says.” as a random statement appeared in a matrix table asking participants’ agreement with the following statements. (Participants must select “Disagree” or “Somewhat Disagree”).
2. “I am not paying my attention to the study at all.” as a random statement appeared in a matrix table asking participants’ agreement with the following statements. (Participants must select “Disagree” or “Somewhat Disagree”).

In Study 2, the following attention checks were used after participants went through the scenario description (but they can still get back to the description if needed.)

- Which is NOT mentioned as a feature of the phone?
 - In the utilitarian condition, choices include a) water resistance; b) expandable storage; c) free subscription to MS Office 365; d) Optimized system for productivity. (Participants must select c.)
 - In the hedonic condition, choices include a) free access to Netflix dramas, shows, and movies; b) free subscription to music streaming platforms; c) monthly free games; and d) the optimized system for entertainment. (Participants must select c.)

In Study 3 and 4, the following attention checks were used after participants went through the scenario description (but they can still get back to the description if needed.)

- Which is NOT expected for the new camera bag?
 - In the utilitarian condition, choices are a) an easy access to camera; b) durable and comfortable material; c) customizable compartments; and d) external carry for tripods. (Participants must select d.)
 - In the hedonic condition, choices are a) well designed for outdoor photography; b) stylish outlook; c) popular among professionals; and d) made by leather material. (Participants must select d.)

Essay 3 Appendix 1

Table: Measurement Items

Construct	α	CR	Factor Loadings	Mean	Std	Item used
Motivation	.852	.863	.868 .835 .792 .794 .686	5.42 5.31 5.19 5.56 5.03	1.29 1.32 1.40 1.38 1.45	<ul style="list-style-type: none"> ● Motivated by cumulating points for the free flight to Hawaii, I will allocate more of my grocery spending to this grocery store. ● Inspired by collecting points for the free flight to Hawaii, I am more willing to visit this grocery store even though its location is less convenient compared to its competitor. ● Prompt by earning points for the free flight to Hawaii, I am more likely to buy items that I seldom buy at grocery stores (e.g., light bulbs). ● Driven by collecting points for the free flight to Hawaii, I will pay more attention to items that offers bonus points (e.g., buy a dozen eggs to earn extra 10 points). ● Pushed by getting points for the free flight to Hawaii, I will consider other point-earning channels (e.g., opening a co-branded credit card and earn points on my other spending like eat-outs).
Perceived Value	.856	.857	.737 .698 .732 .715 .680 .679	5.40 5.26 5.51 5.38 5.20 5.28	1.31 1.42 1.25 1.34 1.41 1.34	<ul style="list-style-type: none"> ● I will travel at a lower financial cost with the redemption. ● I will spend less on vacations with the redemption. ● I will save money in my leisure trips with the redemption. ● I can discover new destinations with the redemption. ● I can discover places that I wouldn't have discovered otherwise with the redemption. ● I can try new flight routes and airline classes with the redemption.
Value Expectancy	.744	.830	.835 .541 .736	5.09 4.65 4.93	1.26 1.62 1.33	<ul style="list-style-type: none"> ● I was pretty sure about the benefits of the reward. ● I have no doubts about the value of the reward. ● I had a precise idea about the value of the reward.
Perceived Norms	.914	.919	.848 .844 .860	5.18 5.18 5.19	1.48 1.51 1.50	<ul style="list-style-type: none"> ● People who are important to me support me to collect and redeem for free flights to Hawaii. ● People who influence my behavior encourage me to collect and redeem points for free flights to Hawaii. ● My family members think I should collect and redeem points for free flights to Hawaii.

			.741	5.13	1.54	<ul style="list-style-type: none"> ● In my observation, it is common practice to collect points and redeem for rewards like free flights to Hawaii.
			.786	5.08	1.55	<ul style="list-style-type: none"> ● Many people I know collect and redeem points for rewards like free flights to Hawaii.
			.769	5.17	1.50	<ul style="list-style-type: none"> ● I am in the group that advocates redeeming for rewards like free flights to Hawaii.
Conformity Tendency	.923	.915	.780	4.55	1.83	<ul style="list-style-type: none"> ● I rarely purchase the latest fashion styles until I am sure my friends approve of them.
			.871	4.74	1.80	<ul style="list-style-type: none"> ● It is important that others like the products and brands I buy.
			.874	4.69	1.76	<ul style="list-style-type: none"> ● When buying products, I generally purchase those brands that I think others will approve of.
			.886	4.72	1.73	<ul style="list-style-type: none"> ● If other people can see me using a product, I often purchase the brand they expect me to buy.
Self-efficacy	.916	.881	.770	5.32	1.41	<ul style="list-style-type: none"> ● I will be able to achieve free flights to Hawaii as expected.
			.806	5.31	1.41	<ul style="list-style-type: none"> ● When facing difficulties, I am certain that I will get free flights to Hawaii as expected.
			.806	5.42	1.38	<ul style="list-style-type: none"> ● I will be able to successfully overcome many challenges when pursuing free flights to Hawaii.
			.838	5.36	1.37	<ul style="list-style-type: none"> ● I am confident that I can obtain free flights to Hawaii as expected.
			.785	5.13	1.35	<ul style="list-style-type: none"> ● Even if things are tough, I can eventually redeem for free flights to Hawaii as expected.
Controllability	.837	.882	.882	5.01	1.33	<ul style="list-style-type: none"> ● Whether I will redeem for free flights to Hawaii is controllable by myself.
			.807	4.99	1.35	<ul style="list-style-type: none"> ● Whether I will redeem for free flights to Hawaii is intended by me.
			.845	4.95	1.36	<ul style="list-style-type: none"> ● I am responsible for obtaining free flights to Hawaii.
Intention	.850	.891	.869	4.98	1.48	<ul style="list-style-type: none"> ● In this scenario, I intend to go fully for free flights to Hawaii.
			.851	4.86	1.51	<ul style="list-style-type: none"> ● Given the information, I predict I will collect points only for DREAM rewards.
			.668	4.49	1.61	<ul style="list-style-type: none"> ● It is likely that I will not collect any points for CASH rewards at all.
			.878	4.95	1.51	<ul style="list-style-type: none"> ● I have the intention to put all my earned points in the DREAM reward category for free flights to Hawaii.

Essay 3 Appendix 2: Supplemental Information

Construct Reliability, Validity, and Intercorrelation in Study 2

	CR	AVE	MSV	BB	INTENT	MOTIV	NB
BB	.971	.944	.560	.972			
INTENT	.889	.668	.625	.515	.817		
MOTIVE	.871	.575	.625	.748	.790	.758	
NB	.885	.794	.599	.732	.625	.774	.891

BB: Behavioral belief, second-order construct for perceived value and value expectancy; NB: Normative belief, second-order construct for perceived norms and conformity tendency
The diagonal cell in the intercorrelation is the square root of AVE.

Construct Reliability, Validity, and Intercorrelation in Study 3

	CR	AVE	MSV	EFF	INTENT	MOTIV	CTL
EFF	.872	.577	.665	.834			
INTENT	.861	.609	.472	.671	.788		
MOTIVE	.889	.667	.472	.410	.687	.744	
CTL	.706	.647	.665	.815	.699	.573	.793

EFF: Efficacy; CTL: Controllability; The diagonal cell in the intercorrelation is the square root of AVE.

Demographic Information of Participants in Studies

	Gender¹	Age Group²			
	Female	18-24	25-34	35-44	45-54
Study 1	37.4%	7.7%	41.2%	27.7%	17.5%
Study 2	38.5%	3.8%	45.8%	26.0%	15.4%
Study 3	41.5%	3.6%	36.3%	21.2%	32.6%

¹: Multiple choice (Female/Male/Non-binary/Not to say) was used in this question, but no participants select the third and the fourth choice. ²: other age groups include: 55-64, and 65+.

Stimuli Used in Studies

Note: the text between the bolded square brackets (i.e., “[section]xxx[end of section]”) is presented to all participants; and the italicized text in the curly bracket (i.e., “{xxx}”) is only presented to participants in noted condition.

Study 1

[Introduction] Your favorite grocery store just launched a new loyalty program, which rewards one (1) point for each dollar spending in the store.

The program offers two types of rewards: the CASH reward and the DREAM reward. As their names indicate, the CASH reward is the monetary discount for store purchases, and the DREAM reward offers free round-trip air tickets to vacation destinations. The CASH reward can be redeemed from 100 points, and the DREAM reward can be redeemed from 5,000 points.

However, it should be noted that the earning for these two types of rewards is separate, and that earned points cannot be transferred from one to the other. In other words, the user cannot use their points collected for CASH rewards to redeem for DREAM rewards, nor use points collected for DREAM rewards to redeem for CASH rewards. **[End of Introduction]**

[Value] You are particularly interested in a free trip to Hawaii, which requires as few as 5,000 points to redeem. Hawaii is your dream destination to visit, and thus you know that a round-trip flight there costs at least {High condition: \$1,000} {Low condition: \$500}. **[End of Value]**

[Expectancy] {High condition: *You know the price of flights to Hawaii very well, because you are saving for a trip to Hawaii and keep track of the flight price.*}

{Low condition: *You have limited idea about the price of flights to Hawaii, but you think the price should be roughly in this range.*} **[End of Expectancy]**

[Norms] {High condition: *You also notice that the DREAM reward is more popular among customers. In fact, the earning ratio between CASH and DREAM rewards is recommended at the ratio of 3:7 (i.e., for \$100 spending, which earns 100 points, 30 points are cumulated for CASH rewards, and 70 points for DREAM rewards).*}

{Low condition: *You also notice that the CASH reward is more popular among customers. In fact, the earning ratio between CASH and DREAM rewards is recommended at the ratio of 7:3*

(i.e., for \$100 spending, which earns 100 points, 70 points are cumulated for CASH rewards, and 30 points for DREAM rewards). } **[End of Norms]**

[Conformity] {High condition: *You learned this ratio from one of your best friend, who already set up the default earning ratio as recommended.* }

{Low condition: *You learned this ratio online: a life hacker blog you never heard of claims that this ratio is the best practice.* } **[End of Conformity]**

[Second Introduction] You just did a quick calculation based on how much you spent in this grocery store last year, and you concluded that your best strategy is all or nothing for DREAM rewards. Particularly, if you really want free flights to Hawaii, you should collect all points for DREAM rewards so that you can redeem for the flights roughly in one year. If you are not sure about DREAM rewards, you should collect all points for CASH rewards so that you don't leave any points unused. As mentioned above, the earning for these two types of rewards is separate, so that earned points cannot be transferred from one to the other. **[End of Second Introduction]**

[Efficacy] {High condition: *You are highly confident that you can get the free flights in one year, because you know that the estimation is accurate and conservative. Particularly, you kept a detailed record of your grocery spending last year, and a portion of your grocery spending was not in this grocery store last year. As a result, you don't see any problem to spend as much this year.* }

{Low condition: *You are highly doubtful that you can get the free flights in one year, because you know that the estimation is inflated and possibly over-optimistic. Particularly, you just had a rough number about your grocery spending last year, and a portion of the spending in this store was one-time only. As a result, you don't expect to spend any close to that much this year.* } **[End of Efficacy]**

[Controllability] {High condition: *Also, you have no concern about finding time for a vacation to Hawaii. You have sufficient paid time off (PTO) for a vacation to Hawaii, and your supervisor always approves reasonable PTO requests.*}

{Low condition: *Also, you have great concern about finding time for a vacation to Hawaii. You need to stretch your limited paid time off (PTO) for a vacation to Hawaii, and your supervisor seems annoyed by even reasonable PTO requests.*} **[End of Controllability]**

Study 2

[Introduction] Your favorite grocery store just launched a new loyalty program, which rewards one (1) point for each dollar spending in the store.

The program offers two types of rewards: the CASH reward and the DREAM reward. As their names indicate, the CASH reward is the monetary discount for store purchases, and the DREAM reward offers free round-trip air tickets to vacation destinations. The CASH reward can be redeemed from 100 points, and the DREAM rewards can be redeemed from 5,000 points.

However, it should be noted that the earning for these two types of rewards is separate, and that earned points cannot be transferred from one to the other. In other words, the user cannot use their points collected for CASH rewards to redeem for DREAM rewards, nor use points collected for DREAM rewards to redeem for CASH rewards. **[End of Introduction]**

[Value] You are particularly interested in a free trip to Hawaii, which requires as few as 5,000 points to redeem. Hawaii is your dream destination to visit, and thus you know that a round-trip flight there costs at least {High condition: *\$1,000*} {Low condition: *\$500*}. **[End of Value]**

[Expectancy] {High condition: *You know the price of flights to Hawaii very well, because you are saving for a trip to Hawaii and keep track of the flight price.*}

{Low condition: *You have limited idea about the price of flights to Hawaii, but you think the price should be roughly in this range.*} **[End of Expectancy]**

[Norms] {High condition: *You also notice that the DREAM reward is more popular among customers. In fact, the earning ratio between CASH and DREAM rewards is recommended at the ratio of 3:7 (i.e., for \$100 spending, which earns 100 points, 30 points are cumulated for CASH rewards, and 70 points for DREAM rewards).*}

{Low condition: *You also notice that the CASH reward is more popular among customers. In fact, the earning ratio between CASH and DREAM rewards is recommended at the ratio of 7:3 (i.e., for \$100 spending, which earns 100 points, 70 points are cumulated for CASH rewards, and 30 points for DREAM rewards).*} **[End of Norms]**

[Conformity] {High condition: *You learned this ratio from one of your best friend, who already set up the default earning ratio as recommended.*}

{Low condition: *You learned this ratio online: a life hacker blog you never heard of claims that this ratio is the best practice.*} **[End of Conformity]**

[Second Introduction] You just did a quick calculation based on how much you spent in this grocery store last year, and you concluded that your best strategy is all or nothing for DREAM rewards. Particularly, if you really want free flights to Hawaii, you should collect all points for DREAM rewards so that you can redeem for the flights roughly in one year. If you are not sure about DREAM rewards, you should collect all points for CASH rewards so that you don't leave any points unused. As mentioned above, the earning for these two types of rewards is separate, so that earned points cannot be transferred from one to the other. **[End of Second Introduction]**

[Context] {Public context: *The loyalty program is so popular that it becomes a topic in your company. Your colleagues know that you always visit this grocery store, and they ask you to share your choice and tell them why you make the selection.*}

{Private context: *The loyalty program is so interesting that it becomes a topic in the dinner. your wife(husband) asks you which type of rewards we should pursue and why.*}

Study 3

[Introduction] Your favorite grocery store just launched a new loyalty program, which rewards one (1) point for each dollar spending in the store.

The program offers two types of rewards: the CASH reward and the DREAM reward. As their names indicate, the CASH reward is the monetary discount for store purchases, and the DREAM reward offers free round-trip air tickets to vacation destinations. The CASH reward can be redeemed from 100 points, and the DREAM rewards can be redeemed from 5,000 points.

However, it should be noted that the earning for these two types of rewards is separate, and that earned points cannot be transferred from one to the other. In other words, the user cannot use their points collected for CASH rewards to redeem for DREAM rewards, nor use points collected for DREAM rewards to redeem for CASH rewards. **[End of Introduction]**

[Value] You are particularly interested in a free trip to Hawaii, which requires as few as 5,000 points to redeem. Hawaii is your dream destination to visit, and thus you know that a round-trip flight there costs at least \$1,000. **[End of Value]**

[Second Introduction] You just did a quick calculation based on how much you spent in this grocery store last year, and you concluded that your best strategy is all or nothing for DREAM rewards. Particularly, if you really want free flights to Hawaii, you should collect all points for DREAM rewards so that you can redeem for the flights roughly in one year. If you are not sure

about DREAM rewards, you should collect all points for CASH rewards so that you don't leave any points unused. As mentioned above, the earning for these two types of rewards is separate, so that earned points cannot be transferred from one to the other. **[End of Second Introduction]**

[Efficacy] {High condition: *You are highly confident that you can get the free flights in one year, because you know that the estimation is accurate and conservative. Particularly, you kept a detailed record of your grocery spending last year, and a portion of your grocery spending was not in this grocery store last year. As a result, you don't see any problem to spend as much this year.*}

{Low condition: *You are highly doubtful that you can get the free flights in one year, because you know that the estimation is inflated and possibly over-optimistic. Particularly, you just had a rough number about your grocery spending last year, and a portion of the spending in this store was one-time only. As a result, you don't expect to spend any close to that much this year.*} **[End of Efficacy]**

[Controllability] {High condition: *Also, you have no concern about finding time for a vacation to Hawaii. You have sufficient paid time off (PTO) for a vacation to Hawaii, and your supervisor always approves reasonable PTO requests.*}

{Low condition: *Also, you have great concern about finding time for a vacation to Hawaii. You need to stretch your limited paid time off (PTO) for a vacation to Hawaii, and your supervisor seems annoyed by even reasonable PTO requests.*} **[End of Controllability]**

[Experience] {Absent Condition: information about daily flight schedule to Hawaii is provided.}

{Relevant condition: *When you are about to make the decision, one of your best friend contacted you. You mention the loyalty program and ask his(her) opinion. Your friend tells you that he(she)*

was in a similar program before and he/she decided to go for free airline tickets to Cancun, Mexico. However, the point collection was not easy as he/she thought. After collecting hard for about ten months, he/she realized that the points collected were much less than expected. He/she had to ask for his/her friends to collect points for him(h In Study 1, the following attention check was used after participants went through the scenario description (but they can still get back to the description if needed.)

er) every time they buy groceries. Luckily, he/she was able to redeem for the ticket as expected with the help from friends at the end.}

{Irrelevant condition: When you are about to make the decision, you watched a video blog online, which is someone you don't know sharing his/her) story of redeeming a free iPhone. The person is in a loyalty program run by a foreign grocery chain, and he planned to redeem a free iPhone by collecting points for a year. However, the point collection was not easy as he/she thought. After collecting hard for about ten months, he/she realized that the points collected were much less than expected. He(She) started to find alternative ways to earn points. The program at that time offered a promotional lottery, where members can spend points to scratch tickets that awards free rewards and points. The person decided to bet on it, and he/she spend half of his/her) saving of points on the lottery. Luckily, the person won the points enough to redeem an iPhone from the lottery at the end.}

Attention Checks Used in Studies

All studies included the following two attention checks.

3. "I am doing this study without paying any attention to whatever it says." as a random statement appeared in a matrix table asking participants' agreement with the following statements. (Participants must select "Disagree" or "Somewhat Disagree").
4. "I am not paying my attention to the study at all." as a random statement appeared in a matrix table asking participants' agreement with the following statements. (Participants must select "Disagree" or "Somewhat Disagree").

In Study 1, the following attention check was used after participants went through the scenario description (but they can still get back to the description if needed.)

- Which of the following statement about the loyalty program is ***not true***?
 - You cannot use your points collected for CASH rewards to redeem DREAM rewards.
 - When you spend \$100 in the store, you can earn 100 points to redeem for CASH rewards and another 100 points for DREAM rewards.
 - You can fly to Hawaii for free with \$5,000 spending in groceries. (Participants must select this choice)
 - You considered whether you can find time for the trip when making decision about which reward to collect points for.

In Study 2, the following attention check was used after participants went through the scenario description (but they can still get back to the description if needed.)

- Which of the following statement about the loyalty program is ***not true***?
 - You cannot use your points collected for CASH rewards to redeem DREAM rewards.
 - When you spend \$100 in the store, you can earn 100 points to redeem for CASH rewards and another 100 points for DREAM rewards.
 - DREAM rewards are free air tickets to popular vacation destinations.
 - You can fly to Hawaii for free with \$5,000 spending in groceries. (Participants must select this choice)

In Study 3, the following attention check was used after participants went through the scenario description (but they can still get back to the description if needed.)

- Which of the following statement about the loyalty program is ***not true***?
 - It is best to follow the recommended split ratio and collect points for both CASH and DREAM rewards simultaneously. (Participants must select this choice)
 - Your estimation about getting free flights to Hawaii is based on your spending in this grocery store last year.
 - You considered whether you can find time for the trip to Hawaii when making decision about which reward to collect points for.
 - You cannot use points collected for DREAM rewards to redeem for CASH rewards.